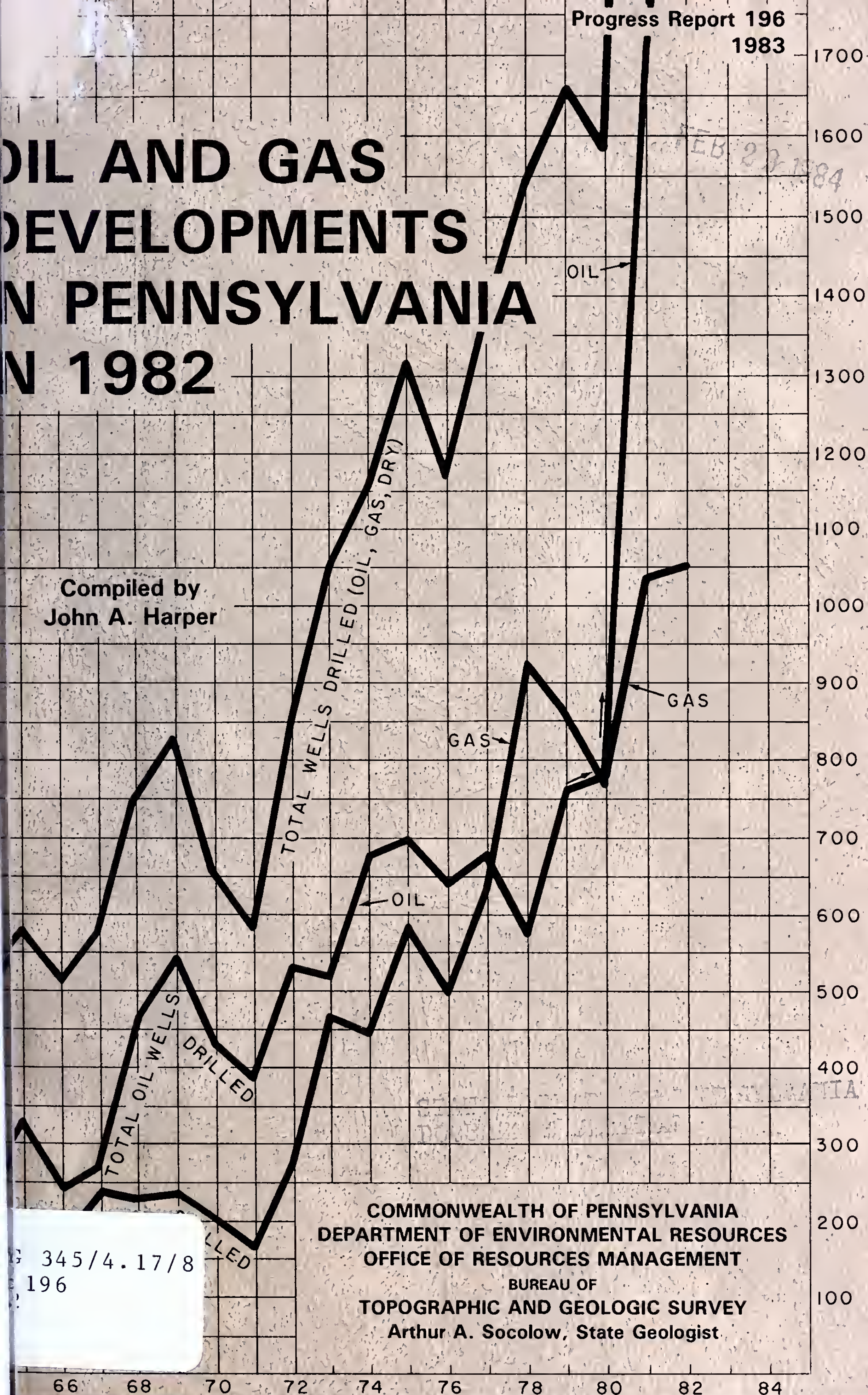
Progress Report 196
1983

IL AND GAS EVELOPMENTS N PENNSYLVANIA N 1982

Compiled by
John A. Harper



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
OFFICE OF RESOURCES MANAGEMENT
BUREAU OF
TOPOGRAPHIC AND GEOLOGIC SURVEY
Arthur A. Socolow, State Geologist

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OIL AND GAS DEVELOPMENTS IN PENNSYLVANIA IN 1982

Compiled by John A. Harper
Pennsylvania Geological Survey

PENNSYLVANIA GEOLOGICAL SURVEY

FOURTH SERIES

HARRISBURG

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OIL AND GAS DEVELOPMENTS IN PENNSYLVANIA IN 1982

Compiled by
John A. Harper

ABSTRACT

Pennsylvania's oil production totaled 4,282,354 barrels in 1982, a 15 percent increase over 1981 production. Oil reserves decreased 2 percent from 50,946,000 barrels in 1981 to 49,764,000 barrels in 1982. Leading counties for production of oil were Warren, Venango, and McKean. In 1982 secondary recovery of oil in the Bradford field accounted for only 22 percent of the state total. New waterflood projects were begun in Forest, Venango, and Washington Counties, and old projects, both waterflood and microemulsion-polymer varieties, continued in Elk, Forest, McKean, Venango, and Warren Counties. Both of the state's microemulsion-polymer projects are located in the Bradford field, McKean County.

Gas production decreased 1 percent from 122,454 million cubic feet in 1981 to 121,111 million cubic feet in 1982. Gas reserves increased 6 percent from 1,884,650 million cubic feet in 1981 to 1,997,029 million cubic feet in 1982. Stored recoverable gas also increased 6 percent, to 631,482 million cubic feet.

The price for all crude oil and oil products declined in 1982 nationwide. The price of Penn Grade Crude oil was $35.00 per barrel on January 1, but dropped to $30.00 per barrel on March 16. Gas prices were subject to Natural Gas Policy Act price ceilings. The well-head price of one thousand cubic feet of natural gas ranged from a low of $0.25 under old contracts to $3.51 for stripper gas. The average price for gas was about $2.80.

The total number of wells reported drilled in 1982 was 4,224, a 19 percent increase over 1981. Total footage drilled was 9,503,096 feet, a 6 percent increase. The total number of oil wells reported was 2,175, an increase of 33 percent over the 1981 figure of 1,641. The most active counties for oil well drilling were Venango, Forest, Warren, and McKean, accounting for 97 percent of all oil wells drilled in the state. A total of 1,734 gas wells was reported in 1982, representing a 3 percent increase over 1981. The most active counties for gas well drilling were Indiana, Erie, Crawford, Clearfield, Jefferson, and Westmoreland, accounting for 81 percent of all gas wells drilled in the state. There were 24 combination oil and gas wells reported in

1982, an increase of 50 percent over 1981. No single county dominated drilling of combination oil and gas wells.

Exploratory drilling in 1982 decreased by 47 percent, from 405 wells reported in 1981 to 214 wells reported in 1982. Development drilling increased 27 percent in 1982, to 3,828 wells. The success rate for exploratory drilling was 84 percent; it was 97 percent for development drilling.

Seismic exploration declined by 38 percent, from 54.75 crew-months in 1981 to 34 crew-months in 1982. Seismic crews operated in 24 counties in Pennsylvania during the year, at a total expenditure of $8,500,000.

Present activity within the Oil and Gas Geology Division of the Bureau of Topographic and Geologic Survey includes a combined revision of the oil and gas well record files and the oil and gas base map series. The files and maps are both being revised so that the numbering is based on the well permit numbers, and the base maps are also being revised to 7½-minute scale from the present 15-minute scale.

INTRODUCTION

This report is based for the most part on drillers' well records and location plats filed with the Bureau of Oil and Gas Management, Pennsylvania Department of Environmental Resources. The statistics of oil and gas drilling are compiled only from the records received during the calendar year. This includes records of wells drilled prior to, but reported in, 1982; it does not include 1982 wells for which records were submitted to the Commonwealth after December 31, 1982. Crude-oil production and reserve figures are published through the courtesy of the Penn Grade Crude Association of Bradford, Pennsylvania. Ms. Mary Ann Gross, Equitable Gas Company, supplied data on natural-gas production and reserves.

ACKNOWLEDGEMENTS

We are grateful to the following industry and government organizations without whose help this report would have been impossible: American Gas Association; American Petroleum Institute; Appalachian Oil Scouts Association; Bureau of Oil and Gas Management, Pennsylvania Department of Environmental Resources; Bureau of Statistics, Pennsylvania Department of Commerce; Division of Minerals, Bureau of Forestry, Pennsylvania Department of Environmental Resources; Penn Grade Crude Association; and U.S. Department of Energy.

We extend special thanks to all of the operators, companies, and personnel of Pennsylvania's oil and gas industry who released natural-gas produc-

tion statistics and mechanical logs, and who provided data on producing formations, intervals, drilling costs, and oil and gas prices.

Cheryl L. Cozart of the Oil and Gas Geology Division, Bureau of Topographic and Geologic Survey, assisted in the compilation of this report.

PRODUCTION AND RESERVES

CRUDE-OIL PRODUCTION

Pennsylvania's crude-oil industry produced 4,282,354 bbl (barrels) of Penn Grade crude oil in 1982, reflecting an increase of 15 percent over the 1981 production total of 3,729,214 bbl. Most of this production was from Upper Devonian and Lower Silurian reservoirs, but there was some subsidiary production from Pennsylvanian and Mississippian reservoirs. Lower Silurian Medina Group sandstones in Erie and Crawford Counties produced 71,380 bbl of crude oil, an increase of 11 percent over the previous year. See Figure 1 for a summary of these statistics.

Figure 1. Crude-oil production in Pennsylvania, 1982.

Penn Grade Oil	1982	1981	% Change	Cumulative to 12/31/82
	(1,000 barrels)			
Shallow oil[1]	4,211	3,665	+ 15	1,307,620
Deep oil[2]	71	64	+ 11	1,086[3]
TOTAL OIL	4,282	3,729	+ 15	1,308,706

[1] Shallow oil: from Late Devonian or younger rocks, generally less than 2,000 feet deep.

[2] Deep oil: from Lower Silurian Medina Group.

[3] Includes production of oil previously classified as "Corning Grade."

Figure 2 illustrates the amount of oil production and the total number of producing oil wells in Pennsylvania in 1982, by county. Production statistics for oil in Pennsylvania's counties are based on commerce figures, the amount that is shipped or sold, rather than on the actual amount produced from each well. The leading counties for oil production during the year were Warren, McKean, and Venango, in that order, continuing a trend that has been established for a number of years. These three counties were responsible for 78 percent of the total oil produced in Pennsylvania.

Figure 2. Oil wells and crude oil produced in Pennsylvania in 1981 and 1982, by counties.

County	Crude oil production (barrels) 1982	1981	Number of producing oil wells 12/31/82	12/31/81
Allegheny	65,606	65,333	347	328
Armstrong	10,293	10,350	96	91
Beaver	6,335	4,617	77	68
Butler	56,701	66,683	1,113	1,070
Clarion	24,540	27,503	190	344**
Clearfield	418	229	4	4
Crawford	51,931	60,847	116	136**
Elk	385,858	241,632	170	155
Erie	3,430	3,478	64	54
Fayette	680	0	2	1
Forest	165,409	153,244	983	1,012
Greene	23,575	24,558	244	322
Indiana	2,850	3,074	80	51
Jefferson	4,791	5,305	14	24
Lawrence	0	103	2	3
McKean	920,548	971,519	9,791	10,352
Mercer	7,733	8,471	74	96
Potter	16,792	15,138	86	81
Venango	821,954	827,891	4,412	5,664
Warren	1,050,325	1,012,905	4,966	4,776
Washington	94,055	97,930	585	588
Westmoreland	4,111	5,166	22	19
TOTAL	3,717,935	3,605,976	23,438	25,239

*Compiled by the Pennsylvania Department of Commerce, Bureau of Statistics.

**Corrected figure.

DEVELOPED CRUDE-OIL RESERVES

Developed crude-oil reserves in Pennsylvania at the end of 1982 totaled 49,764,000 bbl, a decrease of 2 percent over the previous year's total of 50,946,000 bbl. McKean, Venango, and Warren Counties once again were ranked as the top three counties for oil reserves in the Commonwealth. New reserves were added only in Elk, Erie, and Crawford Counties. Elk County reserves increased mainly because of significant production enhancement in the Kane sand of the Bradford Group. Erie and Crawford Counties had reserve increases because of increased exploratory and development drilling in the Lower Silurian Medina Group, which has considerably expanded the known reservoirs in those counties. Figure 3 shows crude-oil-reserve statistics by shallow and deep reservoirs.

Figure 3. Crude-oil reserves in Pennsylvania, 1982.

Reserves	1982	1981	% Change
	(1,000 barrels)		
Shallow oil[1]	49,399	50,610	- 2
Deep oil[2]	365	336	+ 9
Total oil	49,764	50,946	- 2

[1] Shallow oil: from Late Devonian or younger rocks, generally less than 2,000 feet deep.

[2] Deep oil: from Lower Silurian Medina Group.

SECONDARY AND TERTIARY CRUDE-OIL RECOVERY PROJECTS

A total of 182 service wells, including waterflood wells, gas-injection wells, tertiary-recovery project wells, and stratigraphic-core test wells, was reported in 1982. Forest County had 107 service wells, and Venango and Elk Counties had 32 and 29 service wells, respectively. Other service wells were reported in Crawford, McKean, Potter, and Washington Counties. These 182 service wells represent a 39 percent increase in oil-related services over 1981.

In a historical sense, the Bradford field in McKean County is the first field in which large-scale waterflooding technology was attempted. Flooding began in the field, probably by accident, sometime in the late 1800's, and intentional flooding began soon after. It was not until the early 1900's, however, that noticeable production enhancement became apparent. Since that time, most of the Bradford field has been under waterflood. Figure 4 shows the changes in oil production in Pennsylvania since Drake's well was drilled in 1859, and the changes in oil production in the Bradford field. It should be noted that in 1982 the Bradford field produced approximately 22 percent of the total state production.

There were 34 new waterflood projects reported in 1982, and several other new projects were reported to be under consideration. West Hickory field in Forest County received 20 new waterflood projects in 1982 in an effort to enhance the production from shallow sandstone reservoirs of the Venango Group. Other new projects were reported in the Fagundus and Stewart Run fields (Forest County), the Walnut Bend, Muskrat Run, Speechley, and

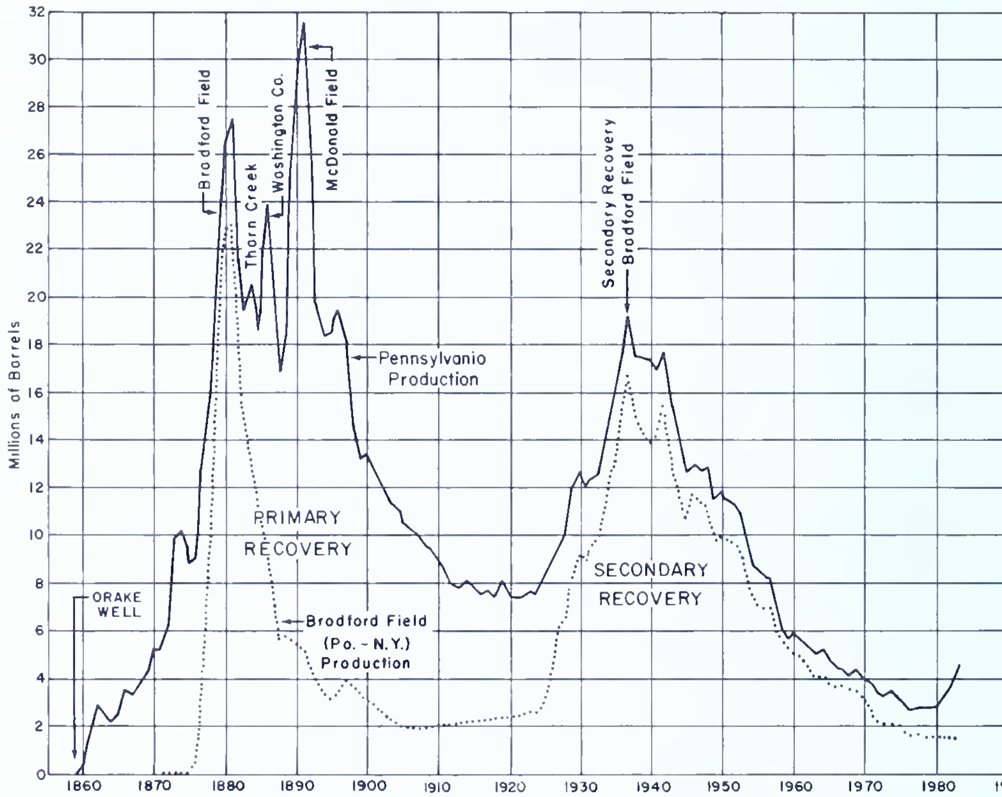

Figure 4. Annual production of crude oil in Pennsylvania, 1859-1982.

Pithole-Cashup fields (Venango County), and the Washington-Taylorstown field (Washington County). All of these projects involve the Venango Group sands. The Washington County project, on the Hodgens Lease, is a Pennzoil Company waterflood that began in early 1982 and has been showing some encouraging results. This is the first reported waterflood project in the Gordon sand in the Washington-Taylorstown field. Pennzoil Company expanded its Highland Warrant project in the Kane sand (Bradford Group) of Elk County by an additional 400 acres. The new injection wells are expected to be put into operation in early 1983.

Pennzoil Company operates two tertiary-recovery projects, both of the microemulsion-polymer type, in the Bradford field. In 1982, Special Project 7 continued operation in the water-injection phase, and Special Project 8 was in the microemulsion-injection stage of Phase II at the end of the year. Both projects are reported to be operating satisfactorily. The Penn Grade Micellar Displacement Project, begun in 1975 as a joint effort of Pennzoil, Quaker State Refining Corporation, Witco Chemical Corporation, and the U.S. Department of Energy, was completed in December 1980. The final report on the project was published in August 1982 as U.S. Department of Energy report DOE/ET/08002-26 (contact USDOE/METC, Morgantown, West Virginia 26505, for information).

NATURAL-GAS PRODUCTION

Pennsylvania's natural-gas production declined in 1982 by 1 percent, down to 121,111 Mmcf (million cubic feet) from the 1981 total of 122,454 Mmcf. The decrease in production is not surprising considering the general economic conditions, both statewide and nationwide, during much of the year. In view of the economy in 1982, it is surprising that the decrease was so small. Apparently most of the production occurred in the first half of the year before the downturn became established. The number of producing gas wells increased 7 percent to an estimated 23,000. Figure 5 shows 1982 gas production statistics for Pennsylvania. Included is a general breakdown of gas production by shallow and deep reservoirs.

Figure 5. Natural-gas production in Pennsylvania, 1982.

	1982	1981	% Change	Cumulative to 12/31/82
	(millions of cubic feet)			
Shallow gas[1]	95,332	101,173	- 6	--
Deep gas[2]	25,779	21,281	+ 21	--
TOTAL GAS	121,111	122,454	- 1	9,640,933

[1] Shallow gas: from Late Devonian or younger rocks; generally less than 4,000 feet deep.

[2] Deep gas: from Middle Devonian or older rocks; generally more than 4,000 feet deep.

NATURAL-GAS RESERVES

Proven recoverable reserves of natural gas in Pennsylvania increased 6 percent to 1,997,029 Mmcf in 1982. Stored recoverable gas increased 6 percent as well, to 631,482 Mmcf. Figure 6 shows natural-gas reserve figures for Penn-

Figure 6. Natural-gas reserves in Pennsylvania, 1982.

	1982	1981	% Change
	(millions of cubic feet)		
Total gas	1,997,029	1,884,650	+ 6
Stored recoverable gas	631,483	596,518	+ 6

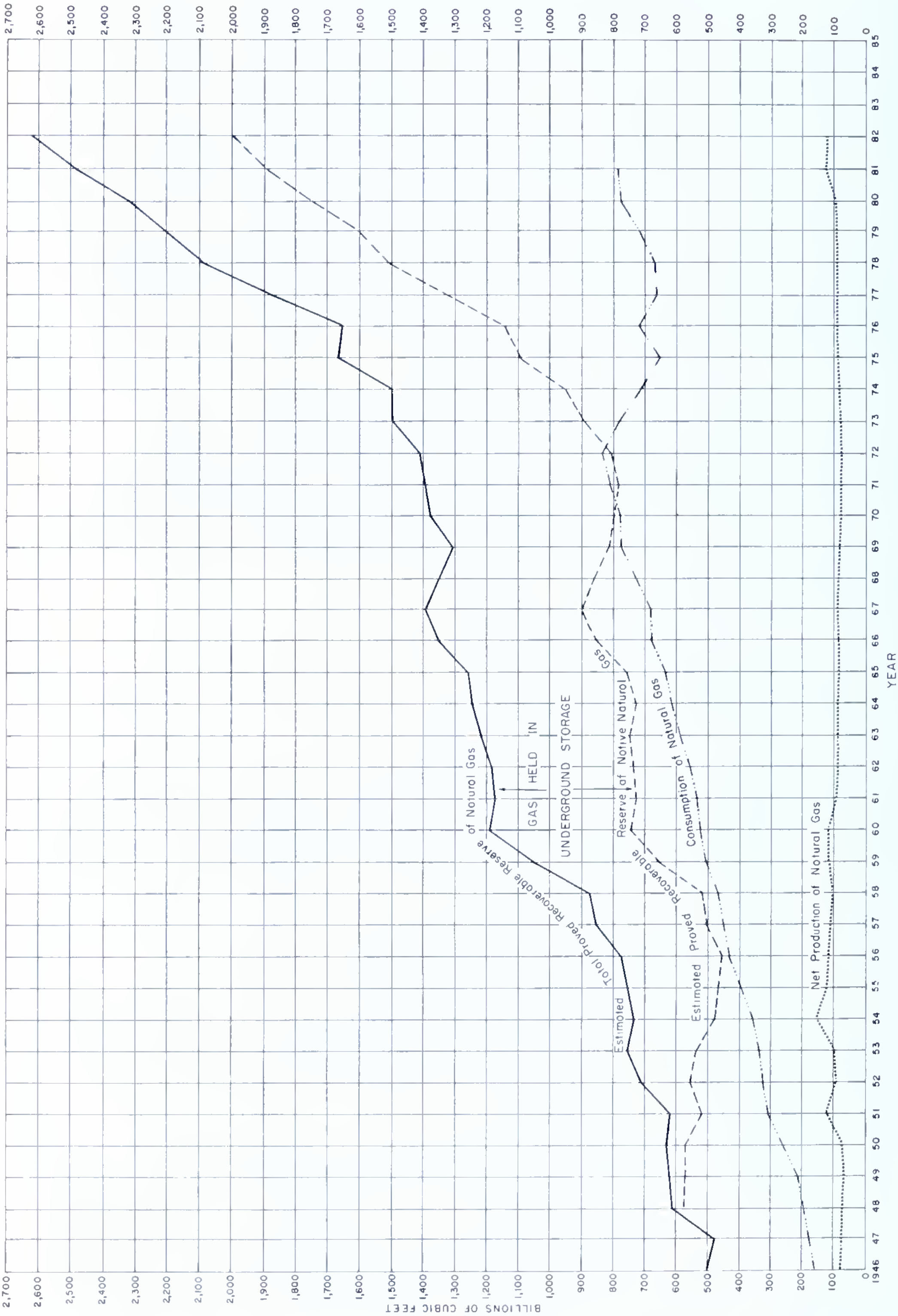

Figure 7. Production, consumption, and reserves of natural gas in Pennsylvania.

sylvania in 1982, and Figure 7 graphically illustrates the differences among production, consumption, and reserves of natural gas for the last 36 years.

NATURAL-GAS STORAGE AREAS

Since the early 1920's, Pennsylvania has consumed more natural gas than it has been able to produce. This has led to the necessity of storing natural gas in large quantities in the summer months to at least partially ensure an adequate supply during the winter. Storage reservoirs are typically old depleted gas-producing reservoirs, or bodies of rock whose geological and engineering characteristics would have made them ideal reservoirs had natural gas been emplaced in them. In Pennsylvania all of the major gas-producing horizons have been used at one time or another as storage reservoirs, but the most common reservoirs are Upper Devonian Bradford and Venango Group sandstones and fractured reservoirs in the Oriskany Sandstone. Figure 8 shows the locations and lists the names of all active gas-storage areas in Pennsylvania in 1982. No changes in storage-area status were reported during the year. Recoverable gas in storage totaled 631,482 Mmcf in 1982 as compared with 596,615 Mmcf in 1981.

OIL AND GAS PRICES

The price for crude oil continued to decline throughout 1982 following the trend set in mid-1981 after decontrol of oil allowed the market to reach its own level. Penn Grade crude oil sold for $35.00 per barrel on January 1, 1982 and dropped steadily during the first three months of the year. On March 16, the price was at a low of $30.00 per bbl. The price rose slightly in October, but once again fell to $30.00 by the end of the year. Many analysts are predicting that crude-oil prices may fall into the $25–30 range in 1983. Changes in crude-oil pricing in 1982 are shown in Figure 9.

Natural-gas prices are subject to controls under the Natural Gas Policy Act (NGPA) of 1978. The object of NGPA was to gradually raise natural-gas prices over a period of 5 or 6 years in order to provide operators with more realistic product prices and, at the same time, cushion the consumer against the shock of inevitable utility price hikes. The lowest prices paid by utilities in Pennsylvania were for old gas, subject to old contracts, produced from pre-NGPA wells. Prices as low as $0.25 per Mcf (thousand cubic feet) are common in some of the older producing areas of the Commonwealth such as Allegheny, Washington, and Greene Counties. The highest price allowed by NGPA was $5.42 per Mcf for Section 107 gas (High-Cost Gas, in this case the price paid for gas from the tight Medina Group), but the highest price paid was probably $3.51 for stripper gas (Section 108). Figure 10 shows NGPA price ceilings for natural gas during 1982.

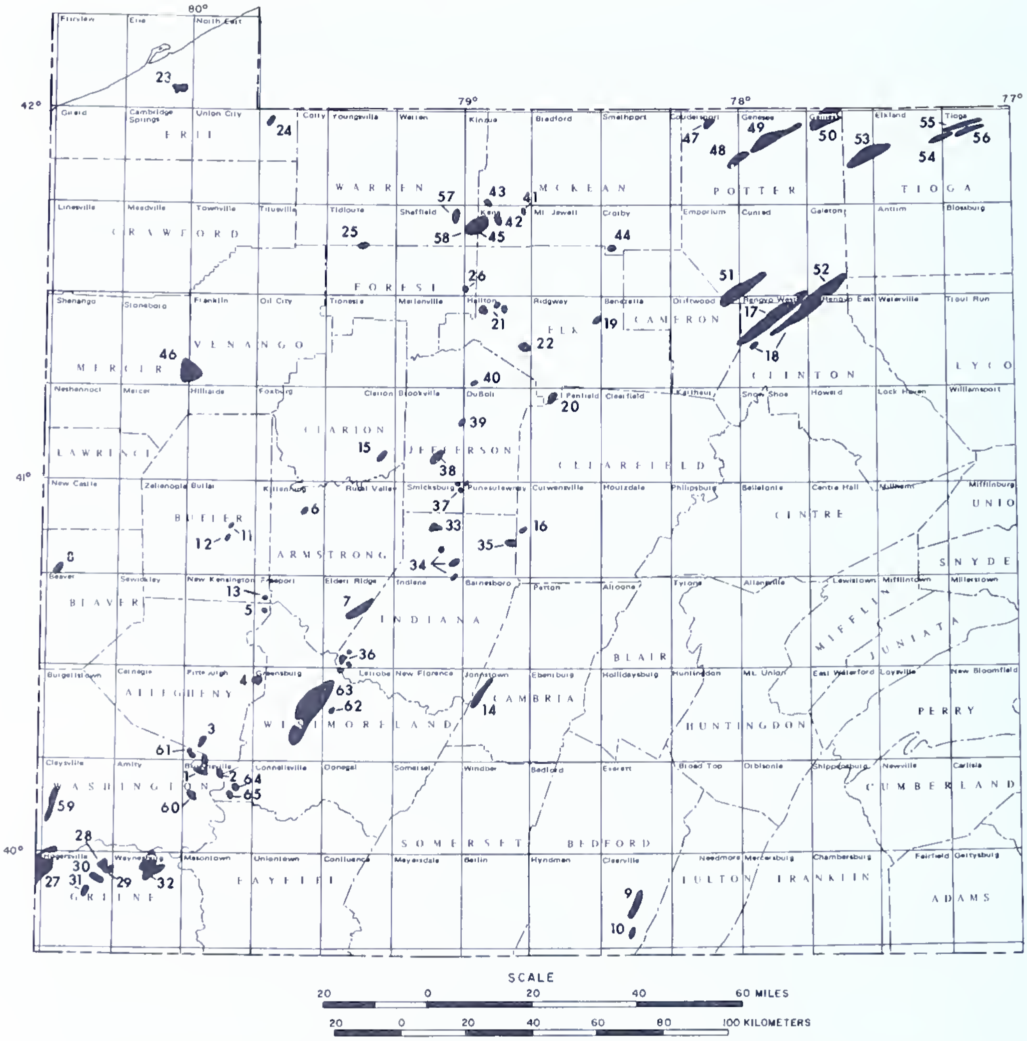

Figure 8. Active natural-gas storage areas of Pennsylvania.

NAMES OF ACTIVE GAS-STORAGE AREAS IN PENNSYLVANIA

ALLEGHENY COUNTY

1. Bunola
2. Gamble-Hayden
3. Tepe
4. Murrysville (Dice)
5. Smith-Parke

ARMSTRONG COUNTY

6. Fair and Helm
7. South Bend

BEAVER COUNTY

8. Black Hawk

BEDFORD COUNTY

9. Artemas A
10. Artemas B

BUTLER COUNTY

11. Vardy
12. Portman
13. Hughes

CAMBRIA COUNTY

14. Rager Mountain

CLARION COUNTY

15. Truittsburg

CLEARFIELD COUNTY

16. Gourley-Miller

CLINTON COUNTY

17. Leidy
18. Tamarack

ELK COUNTY

19. St. Marys
20. Boone Mountain
21. Owls Nest
22. Belmouth

NAMES OF ACTIVE GAS-STORAGE AREAS IN PENNSYLVANIA *(Continued)*

ERIE COUNTY

23. Summit
24. Corry

FOREST COUNTY

25. Queen
26. Duhring

GREENE COUNTY

27. Majorsville-Heard
28. Swarts West
29. Swarts
30. Hunters Cave
31. Holbrook
32. Pratt

INDIANA COUNTY

33. Alabran
34. Kinter
35. Clark
36. Schmidt

JEFFERSON COUNTY

37. Sprankle
38. Galbraith
39. Markle
40. Munderf

McKEAN COUNTY

41. Meade Run
42. Keelor
43. Swede Hill
44. Wellendorf
45. East Branch ''B''

MERCER COUNTY

46. Henderson

POTTER COUNTY

47. Sharon
48. Hebron
49. Ellisburg
50. Harrison
51. Wharton
52. Greenlick

TIOGA COUNTY

53. Sabinsville
54. Palmer
55. Tioga
56. Meeker

WARREN COUNTY

57. Deerlick
58. East Branch ''A''

WASHINGTON COUNTY

59. Donegal
60. Colvin
61. Finleyville

WESTMORELAND COUNTY

62. Seanor
63. Oakford
64. Webster
65. Patton

Figure 9. Crude-oil prices in Pennsylvania, 1982.

Month	Price per barrel
January 1, 1982	$35.00
February 1, 1982	$33.00
March 1, 1982	$32.00
March 16, 1982	$30.00
October 1, 1982	$31.00
December 3, 1982	$30.00

DRILLING AND COMPLETION COSTS

The costs of drilling and completing a well, given below in dollars per foot, vary with the company, drilling depth, method of completion, and geographic area. Costs generally increase yearly due to inflation (some costs actually decreased in 1982 because of the general slowdown in the industry), but they may also increase as total depth increases, especially for wells that penetrate

Figure 10. Natural-gas price ceilings under federal Natural Gas Policy Act in 1982.

NGPA Section	Category of gas	Maximum lawful price for deliveries made in:											
		Jan. 1982	Feb. 1982	Mar. 1982	Apr. 1982	May 1982	June 1982	July 1982	Aug. 1982	Sept. 1982	Oct. 1982	Nov. 1982	Dec. 1982
		cost per million British Thermal Units											
102	New, Natural Gas	$3.003	$3.033	$3.063	$3.093	$3.112	$3.132	$3.152	$3.176	$3.200	$3.224	$3.249	$3.274
103	New, Onshore Production Wells	$2.572	$2.590	$2.608	$2.626	$2.634	$2.642	$2.650	$2.662	$2.674	$2.686	$2.698	$2.710
107 (c) (5)	Gas Produced from Tight Formations	$5.144	$5.180	$5.216	$5.252	$5.268	$5.284	$5.300	$5.324	$5.348	$5.372	$5.396	$5.420
108	Stripper Gas	$3.217	$3.249	$3.281	$3.314	$3.335	$3.356	$3.377	$3.403	$3.429	$3.455	$3.481	$3.508

deeper, untested or undrilled formations. Dry holes are generally less expensive than producing wells because not as much is done to the hole outside of drilling and, perhaps, logging. Extremely deep wells may be extraordinarily expensive, not just because of increased rig time and increased casing, cementing, and other needs, but because provisions must be made for potential unforeseen problems. Wells drilled in untested formations and/or unexplored areas may require special testing and completion techniques as well. In Pennsylvania an average well would be drilled about 2,250 feet deep (the average total depth for all wells reported in 1982), probably to the Upper Devonian Venango or Bradford Group. As such, a deep well (Lower Devonian Oriskany or Lower Silurian Medina Group) is generally greater than 5,000 feet deep, and anything deeper than 10,000 feet is considered ultra deep.

Because drilling conditions and company policies vary widely, even within a small geographic area, the drilling costs listed below are only estimates and should not be used as anything more than ''ballpark'' figures for the industry in 1982.

1. Erie County, shallow gas well in Ohio Shale, about 900 feet deep. Completion, about $15 per foot.
2. Venango County, shallow oil well in the Venango Group sands, about 800 feet deep. Dry hole,* about $18 per foot. Completion, about $37 per foot.
3. McKean County, shallow oil well in the Bradford Group sands, about 2,500 feet deep. Dry hole,* about $15 per foot. Completion, about $25 per foot.
4. Indiana County, shallow gas well in the Bradford Group sands, about 3,600 feet deep. Dry hole,* about $33 per foot. Completion, about $45 per foot.
5. Crawford County, deep gas well in the Medina Group sands, about 5,000 feet deep. Dry hole,* about $25 per foot. Completion, about $40 per foot.
6. Indiana-Westmoreland County, deep gas well in the Oriskany Sandstone, about 8,000 feet deep. Dry hole,* about $51 per foot. Completion, about $72 per foot.
7. Central Pennsylvania, ultra-deep gas well in the Cambro-Ordovician, about 20,000 feet. Completion, about $1,000 per foot.

*No completion attempted.

1982 DRILLING AND COMPLETIONS

TOTAL COMPLETIONS

A total of 4,224 wells was reported in Pennsylvania during 1982, reflecting a 19 percent increase in activity over the 1981 figure of 3,554 wells. This total, which includes 4,208 new wells and 16 old wells drilled deeper, is surprising considering the sharp downturn in the drilling industry during the year.

The total footage drilled in all reported wells increased 6 percent, to 9,503,096 feet. The average total depth in all wells drilled was 2,250 feet; this decrease from last year's average of 2,541 is the result of a 33 percent increase in the number of shallow oil wells, particularly in Venango and Forest Counties, where an average well is about 800 feet deep. The 10 most active counties for drilling in 1982 were Venango, Forest, Indiana, Warren, Erie, Crawford, McKean, Clearfield, Jefferson, and Westmoreland, in that order. Wells in these 10 counties represented 91 percent of all wells reported in the Commonwealth during the year (see Figure 11).

Figure 11. New well completions and old wells drilled deeper in Pennsylvania, 1982.

NEW WELL COMPLETIONS

County	No. of wells	Average total depth (feet)
Allegheny	7	3,639
Armstrong	45	3,451
Beaver	4	959
Butler	5	2,070
Cambria	35	4,047
Cameron	1	6,876
Centre	4	7,628
Clarion	32	1,734
Clearfield	184	3,653
Clinton	9	1,978
Crawford	273	4,423
Elk	63	2,463
Erie	321	3,694
Fayette	18	3,921
Forest	508	886
Greene	37	4,597
Indiana	442	3,727
Jefferson	114	3,448
McKean	254	1,727
Mercer	74	4,982
Potter	23	2,027
Somerset	2	8,300
Tioga	1	6,454
Venango	1,272	961
Warren	348	1,379
Washington	19	2,758
Westmoreland	113	4,035
TOTAL	4,208	2,254

Figure 11. *(Continued)*

OLD WELLS DRILLED DEEPER

County	No. of wells	Average total depth (feet)
Armstrong	2	1,197
Clarion	2	1,321
Fayette	1	111
Forest	1	1,048
Greene	1	1,734
Indiana	3	1,596
Jefferson	1	307
Venango	1	35
Washington	3	1,077
Westmoreland	1	150
TOTAL	16	1,028

OIL COMPLETIONS

Pennsylvania's oil industry reported 2,175 oil well completions during 1982, a 33 percent increase over 1981. Total footage drilled in all oil wells was 2,223,362 feet, a 16 percent increase over a year ago. The average total depth

Figure 12. New oil well completions in Pennsylvania, 1982.

County	No. of wells	Average initial production (bopd)*	Average total depth (feet)
Armstrong	1	1	1,741
Beaver	1	1	1,844
Butler	2	1	1,666
Clarion	5	1	1,155
Crawford	9	3	812
Elk	29	11	2,487
Forest	382	4	875
McKean	236	8	1,733
Mercer	2	2	809
Potter	12	3	1,546
Venango	1,194	5	893
Warren	300	8	990
Washington	2	0	2,575
TOTAL	2,175	5	1,022

*bopd = barrels of oil per day.

for all oil wells was 1,022 feet. The most active counties for oil well drilling were Venango, Forest, Warren, and McKean, in order of importance. Drilling in these four counties accounted for 97 percent of all oil wells reported in the Commonwealth in 1982 (Figure 12).

GAS COMPLETIONS

Pennsylvania's natural-gas industry reported 1,734 gas well completions in 1982, including 13 old wells drilled deeper. This figure constitutes a 3 percent increase over the 1981 figure of 1,677 wells. The total footage drilled in all gas wells was 6,740,198 feet, a 4 percent increase over the previous year. The average depth for all gas wells was 3,887 feet. The most active

Figure 13. New gas well completions and old wells drilled deeper in Pennsylvania, 1982.

NEW GAS WELL COMPLETIONS

County	No. of wells	Average initial open flow (Mcfgpd)*	Average total depth (feet)
Allegheny	6	512	4,085
Armstrong	43	620	3,485
Butler	2	11	2,334
Cambria	35	1,694	4,047
Centre	2	1,329	8,116
Clarion	19	42	1,779
Clearfield	180	1,475	3,634
Clinton	7	4	2,086
Crawford	247	1,197	4,631
Elk	5	154	2,283
Erie	318	1,260	3,692
Fayette	15	710	3,879
Forest	7	0	1,781
Greene	33	203	4,884
Indiana	436	868	3,725
Jefferson	111	579	3,471
McKean	7	251	1,703
Mercer	70	1,115	5,230
Potter	7	51	2,561
Somerset	1	220	8,430
Tioga	1	531	6,454
Venango	21	1,285	4,688
Warren	34	1,242	4,612
Washington	5	218	3,106
Westmoreland	109	509	3,995
TOTAL	1,721	1,000	3,909

Figure 13. *(Continued)*

OLD WELLS DRILLED DEEPER

County	No. of wells	Average initial open flow (Mcfgpd)*	Average amount deepened (feet)
Armstrong	2	275	1,197
Clarion	2	32	1,321
Fayette	1	147	111
Indiana	3	990	1,596
Venango	1	4	35
Washington	3	34	1,077
Westmoreland	1	66	150
TOTAL	13	300	1,027

*Mcfgpd - thousand cubic feet of gas per day.

counties for gas well drilling were Indiana, Erie, Crawford, Clearfield, Jefferson, and Westmoreland, accounting for 81 percent of all gas wells reported during the year. Figure 13 summarizes these data.

COMBINATION OIL AND GAS WELL COMPLETIONS
(Not Reported Separately as Oil or Gas)

The Bureau of Topographic and Geologic Survey classifies any well that is primarily an oil well (i.e., produces any amount of oil) but also produces at least 50 Mcfgpd (thousand cubic feet of gas per day) as a combination oil and gas well. Most oil wells drilled in the Commonwealth produce a little gas, and many produce enough gas to be sold to utilities or pipeline companies. However, if the well produces less than 50 Mcf, regardless of whether or not the gas is sold, it is considered simply as an oil well. Pennsylvania's oil and gas operators reported 24 new combination wells in 1982, a 50 percent increase over the 1981 total of 16. Total footage for these 24 wells was 63,657 feet, a 15 percent increase from a year ago. The average depth for the 24 wells was 2,652 feet. No one county dominated combination well drilling in 1982 (Figure 14).

DRY COMPLETIONS

A total of 109 dry holes was reported in Pennsylvania in 1982, including 2 old wells drilled deeper, but completed as dry. These wells represent a 23 percent increase in the number of dry holes over the 1981 total of 89.

Figure 14. New combination oil and gas well completions in Pennsylvania, 1982.

County	No. of wells	Average initial production (bopd)*	Average initial open flow (Mcfgpd)**	Average total depth (feet)
Butler	1	not given	50	2,350
Clarion	6	2	802	2,247
Crawford	6	not given	971	3,584
Erie	1	not given	26	3,900
Forest	6	94	62	2,041
McKean	3	not given	407	1,632
Warren	1	250	11	5,278
TOTAL	24	34	513	2,652

*bopd = barrels of oil per day.
**Mcfgpd = thousand cubic feet of gas per day.

However, the success rate for all drilling remained at 97 percent despite this increase, reflecting the increase in all drilling during 1982. The total footage for dry holes in 1982 was 263,452 feet, an 8 percent increase. The average total depth for all dry holes, both new completions and old wells drilled deeper, was 2,417 feet (Figure 15).

MISCELLANEOUS COMPLETIONS

Miscellaneous completions include all oil- and gas-related wells that cannot specifically be considered oil- and gas-producing wells. These wells comprise several types: stratigraphic-core tests, drilled to collect subsurface information such as formation thickness or the effects of well completion on various rock types; water-supply wells for waterflood projects; fluid-injection wells for secondary and tertiary recovery of oil; liquid-waste disposal wells; and gas-storage observation wells. Increases and decreases within this category do not accurately reflect oil and gas drilling trends because, for instance, an oil field operator may drill all of his water-supply wells and fluid-injection wells several years after the oil-producing wells have been completed.

During 1982, 182 miscellaneous (service) wells were reported in Pennsylvania, including one old well drilled deeper. This is a 39 percent increase (51 wells) over 1981. Most of the service wells reported during the year were injection wells for secondary- or tertiary-oil-recovery projects, but there were some stratigraphic-core tests as well. The total footage drilled in these 182 wells was 211,806 feet, a 23 percent decrease over the footage drilled in 1981. This decline is due to a startling increase in the number of wells in the 700- or 800-foot range at the expense of deeper wells (fully 77 percent of all the

Figure 15. New dry hole completions and old wells drilled deeper but completed dry in Pennsylvania, 1982.

NEW DRY HOLE COMPLETIONS

County	No. of dry holes	Average total depth (feet)
Allegheny	1	966
Armstrong	1	3,715
Beaver	3	664
Cameron	1	6,876
Centre	2	7,140
Clarion	2	1,205
Clearfield	4	4,492
Clinton	2	1,599
Crawford	9	3,727
Erie	2	3,938
Fayette	3	4,127
Forest	7	949
Greene	4	2,229
Indiana	6	3,860
Jefferson	3	2,623
McKean	6	1,461
Mercer	2	485
Potter	2	3,655
Somerset	1	8,170
Venango	25	1,307
Warren	13	1,597
Washington	4	2,777
Westmoreland	4	5,124
TOTAL	107	2,449

OLD WELLS DRILLED DEEPER, BUT COMPLETED DRY

County	No. of dry holes	Average amt. deepened (feet)
Greene	1	1,734
Jefferson	1	307
TOTAL	2	1,021

service wells reported in 1982 were less than 1,000 feet deep). The average total depth for all service wells was 1,164 feet. Drilling in Forest, Venango, and Elk Counties accounted for 92 percent of all service wells reported in 1982 (see Figure 16).

Figure 16. New service well completions and old wells drilled deeper in Pennsylvania, 1982.

NEW SERVICE WELL COMPLETIONS

County	No. of wells	Average total depth (feet)
Crawford	2	631
Elk	29	2,471
Forest	106	804
McKean	2	1,999
Potter	2	1,417
Venango	32	788
Washington	8	2,577
TOTAL	181	1,164

OLD SERVICE WELL DRILLED DEEPER

County	No. of wells	Average amt. deepened (feet)
Forest	1	1,048

DRILLING AND PRODUCTION ACTIVITY

(Classified as Shallow or Deep)

The Oil and Gas Geology Division of the Bureau of Topographic and Geologic Survey classifies oil and gas wells as shallow or deep, not depending on depth, but on whether or not the Upper-Middle Devonian boundary was penetrated in the well. Wells that penetrate the boundary (normally the top of the Tully Limestone, but in some areas an equivalent shale) are considered deep. Wells that do not penetrate the boundary are considered shallow, regardless of depth. Because of the wedge-shaped character of the sedimentary package deposited in the Appalachian basin, absolute drilling depth is not instrumental. A Lower Silurian Medina Group well in Erie County along the lake shore may be only 2,500 feet deep, and an Upper Devonian Bradford Group well in Clearfield County may be as much as 4,000 feet deep. Yet, the Medina well is considered deep and the Bradford well is considered shallow on the basis of geologic age. Shallow wells, which account for the greatest number of wells drilled in Pennsylvania, may produce oil or gas; deep wells most commonly produce gas, but there are some wells in Erie and

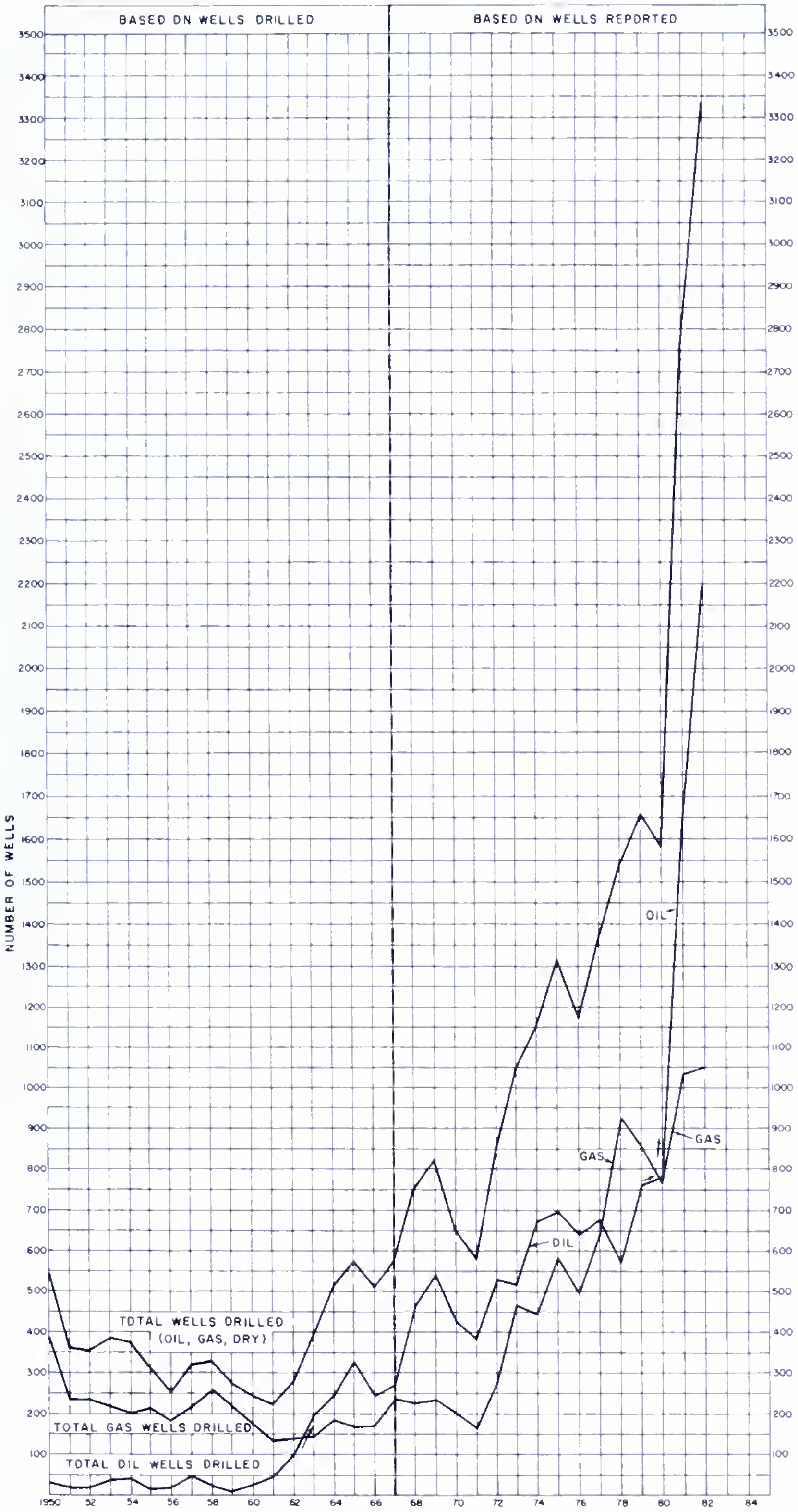

Figure 17. Shallow well activity, 1950-82 (Late Devonian or younger producing horizons; generally less than 4,000 feet).

Crawford Counties that produce small amounts of oil as well. Figure 17 illustrates shallow-well-drilling activity in Pennsylvania over the last 32 years, and Figure 18 shows the changes in deep-well activity during the period 1930–82.

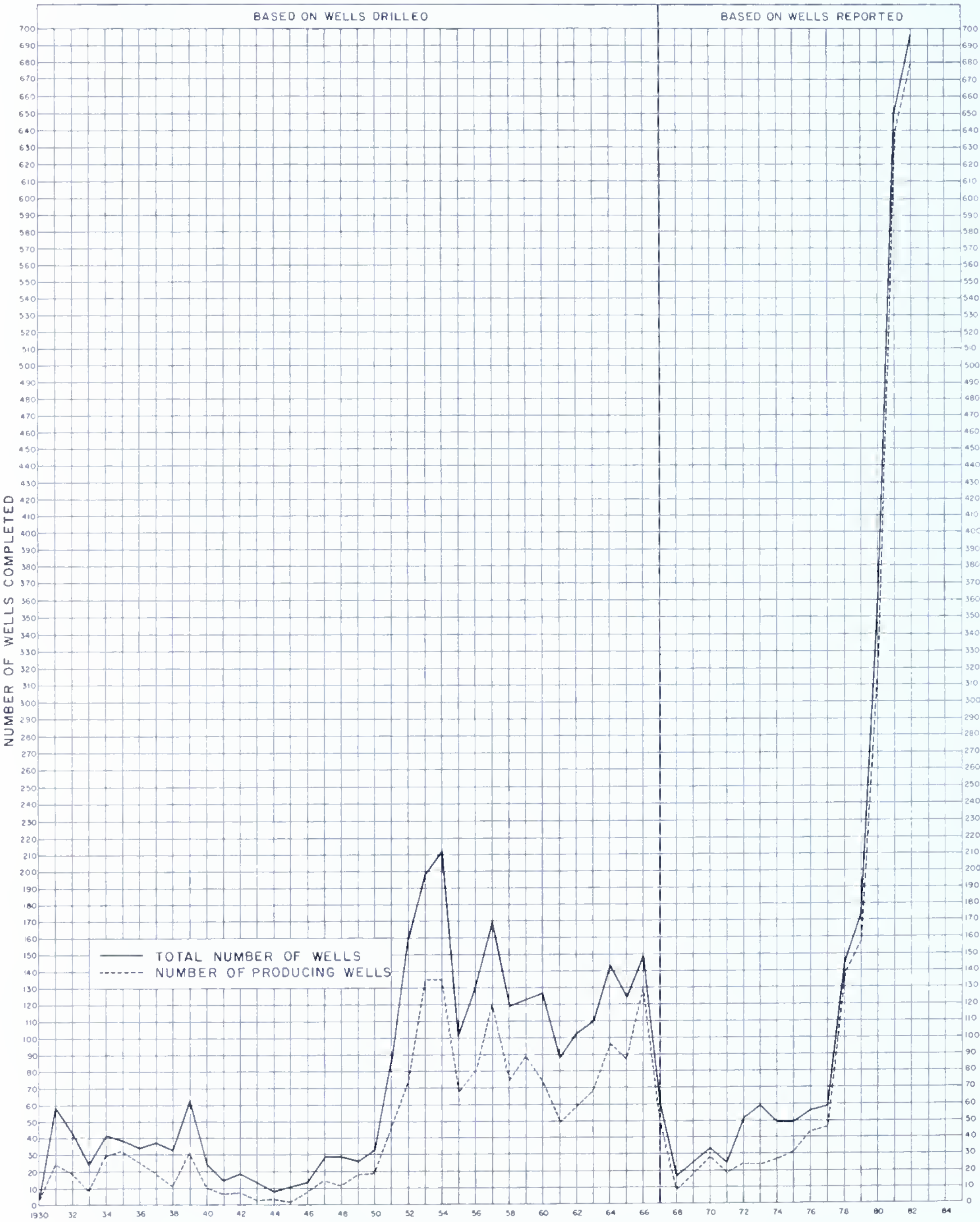

Figure 18. Annual rate of deep sand formation exploration and development, 1930–82 (Middle Devonian or older producing horizons; generally more than 4,000 feet).

The number of shallow wells reported in Pennsylvania in 1982 increased by 22 percent from 2,904 in 1981 to 3,528 in 1982, including 3,331 new wells drilled for oil or gas, 15 old wells deepened for oil or gas, 181 new service wells, and 1 old service well. In general, the shallow oil wells were drilled to the Venango Group and the shallow gas wells were drilled to the Bradford Group. Subsidiary drilling in other shallow horizons found production in the Mississippian (typically the Big Injun sand) and in Upper Devonian Elk Group and Lock Haven Formation sands and the Upper Devonian shales. Shallow oil and/or gas well drilling in Venango, Forest, Indiana, Warren,

Figure 19. Drilling and completion of wells reported, 1982 (according to geologic age and depth of producing horizons).

Shallow - Upper Devonian and younger	
NEW WELLS	
Gas	1,050
Oil	2,175
Oil and gas	16
Dry	90
Total	3,331
DEEPENED WELLS	
Gas	13
Dry	2
Total	15
MISCELLANEOUS WELLS	
Service	181
DEEPENED MISCELLANEOUS WELL	
Service	1
Total	182

Deep - Middle Devonian and older	
NEW WELLS	
Gas	671
Oil and gas	8
Dry	17
Total	696
TOTAL ALL WELLS DRILLED	4,224

McKean, Clearfield, Jefferson, and Westmoreland Counties accounted for 75 percent of all shallow drilling reported in 1982.

As in previous years, deep drilling in Pennsylvania increased in 1982. During the year 696 deep wells were reported in the Commonwealth, an increase of 7 percent over the 1981 figure of 650. Drilling to the Lower Silurian Medina Group in Erie and Crawford Counties dominated deep drilling, accounting for 80 percent of all deep-well activity, and for 85 percent of all Medina drilling activity.

Figure 19 shows the statistical breakdown for both shallow and deep wells reported in Pennsylvania in 1982. Figure 20 illustrates shallow- and deep-well drilling in terms of the final reported production formations.

Figure 20. Oil and gas well completions in Pennsylvania, 1982, by shallow and deep producing formations.

		Producing formation	Oil wells	Gas wells	Combination oil and gas wells
SHALLOW		General Mississippian	0	5	0
	Comingled		0	20	1
		Venango Group	1,705	44	1
	Comingled		0	323	6
		Bradford Group	467	619	9
	Comingled		3	12	0
		Elk Group	0	8	0
		Lock Haven Formation	0	9*	0
		General Devonian shales	0	26*	0
DEEP		Onondaga Group**	0	2	0
	Comingled		0	3	0
		Oriskany Sandstone	0	4	0
		Bass Islands Dolomite	0	1	0
		Medina Group	0	658	7
		Tuscarora Sandstone	0	1	0
		Total	2,175	1,734	24

*Includes wells drilled to deep formations, but completed as shallow producers.

**Includes Huntersville Chert and Onondaga limestone complex.

Shallow production totaled 95,332,450 Mcf of gas and 4,210,974 bbl of oil, whereas deep production accounted for 25,778,550 Mcf of gas and 71,380 bbl of oil. Except for shallow gas production, all figures represent significant increases in production over the 1981 totals. Figure 21 shows deep gas production during the year by field and pool. Figure 22 summarizes the information in Figure 21 by showing amounts of gas produced from the various

Figure 21. Gas production from rocks of Middle Devonian or older age in Pennsylvania, 1982 (classified as "deep" production).

County	Field	Pool	Discovery date	Cumulative production at end of 1981 (in Mcf*)	Production 1982 (in Mcf*)	Cumulative production at end of 1982 (in Mcf*)	Status of field or pool at end of 1982**	Reservoir***
Allegheny	Forward	Monongahela	3/25/79	0	10,000	10,000	Prod.	0
Armstrong	Goheenville	Snyderville	10/23/70	7,009,547	0	7,009,547	SI	0
	Roaring Run	Roaring Run Oriskany	12/14/70	7,190,647	34,137	7,224,784	Prod. and aban.	0
Bedford and Blair	Pavia		1/20/61	11,600	0	11,600	SI	0
Cambria	Carrolltown	Burley	1/13/69	343,362	4,396	347,758	Prod.	0
		Pindleton	6/30/69	4,983,703	91,829	5,075,532	Prod.	0
	Krayn		11/15/81	0	0	0	Aban.	
	Pot Ridge		7/ 1/81	0	0	0	SI	0
Cameron	East Emporium		11/18/71	4,614,165	275,823	4,889,988	Prod.	0
Cameron and Elk	Hicks Run		6/ 7/56	4,342,157	10,992	4,353,149	Prod. and aban.	0
	Whippoorwill		7/10/61	15,974,186	92,602	16,066,788	Prod. and SI	0
Cameron, Clearfield, Elk, Indiana, and Jefferson	Punxsutawney-Driftwood	Total	9/15/51	381,453,631	791,852	382,245,483	Prod. and SI	0
		Benezette	1/ 5/53	250,507,980	246,425	250,867,721	Prod. and aban.	0
		Driftwood	9/15/51		113,316			
		Grove Hill	2/18/81	598	9,508	10,106	Prod.	0
		Helvetia	5/11/60	130,945,053	35,274	131,367,656	Prod., SI, and aban.	0
		Rockton	2/25/55		381,078			0
	Big Run	Reed-Deemer	12/ 1/53		6,251			0
Centre	Black Moshannon		3/31/82	0	0	0	SI	M
	Devils Elbow		12/18/77	166,776	1,474,378	1,641,154	Prod.	M
	Runville		2/28/80	0	145,491	145,491	Prod.	M
Clarion	Clarion-Miola	Weaver	2/22/80	0	0	0	SI	0
Clearfield	Boone Mountain	Moshannon	9/15/76	42,343	4,452	46,795	Prod.	0
	Irish Run	Anderson Creek	9/25/75	67,416	29	67,445	Prod.	0
	West Decatur		3/30/73	3,685,640	77,260	3,762,900	Prod.	0
		Eagle Eye	12/ 6/81	0	0	0	SI	0
Clearfield, Elk, and Jefferson	Penfield	DuBois	1/ 6/60	105,973,557	96,504	106,070,061	Prod.	0
		Sabula	8/26/63	1,154,587	80,503	1,235,090	Prod.	0
Clinton and Potter	Leidy	Total	1/ 8/50	160,366,101	16,052	160,382,153	Gas stor., prod., and SI	0
		Ole Bull	1/ 9/59	5,566,069	16,052	5,582,121		
Crawford	Athens	Total	9/20/74	1,907,166	1,383,286	3,290,452	Prod. and SI	M
		Brimstone	1/30/79	1,143,607	572,561	1,716,168	Prod. and SI	M
		Dutch Hill	8/31/80	16,950	372,067	389,017	Prod.	M
		Lincolnville	8/16/80	3,191	84,273	87,464	Prod.	M
		Potash Run	3/18/79	135,283	51,231	186,514	Prod.	M
		Rome	6/ 9/79	0	125,234	125,234	Prod.	M
	Atlantic	Adamsville	8/ 5/81	0	0	0	SI	M
	Blooming Valley		8/ 5/81	0	0	0	SI	M
	Cambridge Springs		1/31/76	215,493	55,939	271,432	Prod. and SI	M
		Cambridge	4/ 6/76	0	16,606	16,606	Prod. and SI	M
	Church Run	Hatchtown	6/27/79	0	400	400	Prod.	M
		Vrooman	12/ 7/79	0	76,315	76,315	Prod.	M
	Conneaut Lake		8/ 9/82	0	0	0	SI	M
	Eaton Corners	Brown Hill	11/15/81	0	0	0	SI	M
	Frenchtown		8/17/80	0	11,385	11,385	Prod.	M
		Guys Mills	8/26/80	0	0	0	SI	M
		Mt. Hope	10/31/80	0	0	0	SI	M
	Geneva	Greenwood	10/31/73	99,490	87,117	186,607	Prod. and SI	M
		Rock Creek	6/27/77	165,700	127,950	293,650	Prod.	M
	Meadville	Tamarack Lake	12/12/80	0	0	0	SI	M
	Papenfuse		11/16/80	0	87,228	87,228	Prod.	M
	Randolph	Delamater	9/11/81	0	0	0	SI	M

Figure 21. *(Continued)*

County	Field	Pool	Discovery date	Cumulative production at end of 1981 (in Mcf*)	Production 1982 (in Mcf*)	Cumulative production at end of 1982 (in Mcf*)	Status of field or pool at end of 1982**	Reser-voir***
Crawford (cont.)..............	Richmond Township	Woodcock	7/21/81	0	0	0	SI	M
		Zirkle	6/22/81	0	0	0	SI	M
	Rockdale		11/30/79	103,390	237,450	340,840	Prod. and SI	M
	South Shenango		8/ 9/79	0	0	0	SI	M
	Sparta	Eastman Hill	10/30/75	0	0	0	SI	M
	Vernon	Keborts	8/14/81	0	0	0	SI	M
Crawford and Erie.............	Conneaut	Total	2/11/57	43,437,798	2,778,482	46,216,280	Prod. and aban.	M
		Beaver Creek	9/26/81	0	4,262	4,262	Prod. and SI	M
		Blood	12/17/80	0	0	0	SI	M
		Bushnell-Lexington	12/31/58	17,718,067	515,895	18,233,962	Prod. and aban.	M
		Carlson	2/23/81	0	0	0	SI	M
		Center Bar	11/19/78	4,074	0	4,074	SI	O
		Cranesville	6/17/81	0	2,630	2,630	Prod.	L
		Forro	1/ 4/58	28,284	0	28,284	SI	M
		Indian Springs	9/11/57	15,791,878	768,342	16,560,220	Prod., SI, and aban.	M
		Kastle	7/14/62	1,309,519	333,244	1,642,763	Prod. and SI	M
		Lundys Lane	11/ 9/61	3,870,713	887,748	4,758,461	Prod. and aban.	M
		Marsh Run	5/20/82	0	858	858	Prod.	H
		Mud Run	11/ 5/81	0	14,250	14,250	Prod. and SI	M
		Pageville	10/10/80	0	136,253	136,253	Prod. and SI	M
		Pennside	2/ 8/81	0	7,753	7,753	Prod. and SI	M
		Pierce	12/31/58	909,740	11,811	921,551	Prod.	M
		Springboro	11/ 7/79	145,019	57,279	202,298	Prod.	M
		Stone Run	10/21/79	50,270	36,633	86,903	Prod. and SI	M
		West Mead	7/ 8/74	14,750	1,524	16,274	Prod.	M
	Cussewago		6/17/81	0	6,012	6,012	Prod. and SI	M
Crawford and Mercer...........	Kantz Corners		7/26/77	2.917,740	3,105,092	6,022,832	Prod. and SI	M
		Barco	12/13/80	0	14,381	14,381	Prod.	M
		East Fairfield	7/31/80	29,923	306,999	336,922	Prod.	M
		Mt. Pleasant Road	8/30/80	15,772	39,888	55,660	Prod.	M
		Round Knob	11/12/80	18,846	255,883	274,729	Prod.	M
		Shaws Corners	7/15/80	143,485	514.363	657,848	Prod.	M
Crawford, Mercer, and Venango.....................	Cochranton		11/16/80	49,440	1,397,826	1,447,266	Prod. and SI	M
		Deckard	11/ 4/80	0	179,955	179,955	Prod.	M
		McDaniels	3/16/81	134,064	249,553	383,617	Prod.	M
Elk..........................	Horton	Boot Jack	9/20/73	11,275	0	11,275	SI	H
Erie.........................	Carter Hill		5/14/79	29,914	25,607	55,521	Prod.	M
	Columbus	Hare Creek	6/26/81	0	4,917	4,917	Prod.	M
	Concord	Harbor Ridge	10/ 2/79	0	2,106	2,106	Prod.	M
		Stewart Road	3/10/80	0	0	0	SI	M
	Corry	Total	4/29/47	1,158,423	43,468	1,201,891	Prod., SI, aban., and gas stor.	M
		Beaver Dam	5/20/53	234,056	23,389	257,445	Prod. and SI	M
		Spencer Creek	6/19/70	1,891	3,636	5,527	Prod. and SI	M
		Tarbell	9/12/80	10,560	8,561	19,121	Prod.	M
	Drumlin	Swails	6/27/80	28,618	69,994	98,612	Prod. and SI	M
	Edinboro		7/28/80	166,313	121,228	287,541	Prod.	M
	Edinboro North		1/ 9/80	602,323	608,824	1,211,147	Prod. and SI	M
	Erie	Bartosik	3/ 7/79	31,245	31,826	63,071	Prod.	O
		Brandy Run	5/28/79	118	0	118	SI	M
		Charter Oaks	5/19/77	100,662	30,055	130,717	Prod. and SI	M
		Dunn Valley	1/19/80	10,767	3,958	14,725	Prod. and SI	M
		Fairplain	6/ 5/79	677	0	677	SI	M
		Fairview	3/12/76	4,502	401	4,903	Prod. and SI	M
		Glenwood	8/ 9/77	62,598	25,287	87,885	Prod. and SI	M
		Goddard	8/31/78	87,230	14,571	101,801	Prod. and SI	M

		Heidler	5/22/79	0	0	0	SI	M
		Lawrence Park	8/30/77	5,489	3,775	9,264	Prod. and SI	M
		McKean	1/19/73	0	1,118	1,118	Prod.	O
		Talcott	7/ 8/79	39,443	81,532	120,975	Prod.	M
	Franklin Center		6/16/80	60,023	97,676	157,699	Prod. and SI	M
	LeBoeuf	Waterford	3/21/77	1,642,398	493,434	2,135,832	Prod. and SI	M
	Mill Village		7/27/79	636,525	676,979	1,313,504	Prod.	M
	New Ireland		5/14/78	345,865	183,571	529,436	Prod.	M
		Pattison	11/ 9/79	48,638	59,312	107,950	Prod. and SI	M
	North East	Bailey Brook	1/11/80	21,080	8,694	29,774	Prod.	M
		Bull Reservoir	9/17/60	234,444	132,658	367,102	Prod. and SI	M
		Burgess	10/17/60	1,941,636	437,323	2,378,959	Prod.	M
		Delhill Corners	6/23/79	467	2,516	2,983	Prod.	N
		Half Moon	9/ 6/79	0	0	0	SI	M
		Harborcreek	10/20/77	755,203	154,163	909,366	Prod.	M
		Hornby	6/10/78	546,450	374,318	920,768	Prod.	M
		Kuhl	8/14/78	20,490	3,763	24,253	Prod. and SI	M
		Little Hope	12/ 7/78	17,326	2,644	19,970	Prod. and SI	M
		McGuire	2/ 8/80	0	0	0	SI	O
		Orchard Beach	2/18/74	2,082,905	375,021	2,457,926	Prod. and SI	M
		Wattsburg	4/19/80	27	0	27	SI	M
	Phillipsville	Dennee	7/14/81	1,658	13,568	15,226	Prod.	M
	Reeds Corners		7/ 9/80	169,209	124,607	293,816	Prod. and SI	M
Erie and Warren	Brokenstraw		7/27/78	25,766	7,741	33,507	Prod. and SI	M
		Stroup	7/28/80	3,754	2,858	6,612	Prod.	M
	Union City	Bentley Run	10/13/80	6,000	2,955	8,955	Prod.	M
		Emmons	12/30/80	0	9,453	9,453	Prod.	M
Fayette	Feik		8/ 8/63	14,763	2,646	17,409	Prod.	O
	Mill Run		8/17/78	0	0	0	SI	O
		DuPree	8/23/80	0	0	0	SI	O
	Sandy Creek	Quebec Run	6/ 3/69	23,509	2,419	25,928	Prod.	O
	Spruell		10/13/61	7,519,225	310,862	7,830,087	Prod.	O
	Summit	North Summit	3/24/38	21,705,250	58,923	21,764,173	Prod. and aban.	O
		South Summit	5/ 9/42	22,725,419	92,561	22,817,980	Prod. and SI	O
Fayette and Somerset	Ohiopyle	Rugg	12/28/59	4,531,300	27,748	4,559,048	Prod. and SI	O
Fayette and Westmoreland	Jacobs Creek	Bailey	12/26/61	2,248,742	31,524	2,280,266	Prod. and SI	O
Indiana	Cherry Hill	Crichton	1/ 9/63	3,237,992	20,461	3,278,258	Prod. and SI	O
		Hadden	7/11/63		19,805			
	Commodore	Wandin	5/12/81	0	0	0	SI	O
	Jacksonville	Jacksonville	11/17/56	30,210,174	169,674	30,379,848	Prod. and aban.	O
	Living Waters	Uniontown	2/21/80	90,283	138,279	228,562	Prod.	O
	Nolo	Carney Run	4/28/80	0	0	0	SI	O
		Nolo Deep	9/30/56	13,935,358	30,265	13,965,623	Prod. and aban.	O
	Strongstown	Lizowitz	6/19/54	9,891,875	668,427	10,560,302	Prod.	O
		Pineton	12/20/69	10,848,384	870,988	11,719,372	Prod.	O
Lycoming	Salladasburg		6/24/76	36,123	0	36,123	SI	O
McKean	Bradford	Cyclone	2/18/74	1,278,935	133,204	1,412,139	Prod.	N
		Minard Run	1/10/75	12,700	500	13,200	Prod.	C
	Corydon		9/ 8/72	30,705	0	30,705	SI	O
Mercer	Hadley	Derber	9/13/81	0	154,830	154,830	Prod.	O
		Perry School	8/30/81	0	21,254	21,254	Prod.	M
	Jamestown		1/18/79	36,398	7,392	43,790	Prod. and SI	M
	Maysville		11/11/77	16,504	5,220	21,724	Prod.	M
		West Salem	2/17/81	5,628	4,901	10,529	Prod.	M
	New Hamburg	Good Hope	2/ 2/79	17,392	6,544	23,936	Prod.	M
	Sandy Lake	Carpenter Corners	9/11/82	0	0	0	SI	M
	Sharon	Sharon Deep	2/26/78	254,170	280,512	534,682	Prod.	M
	Sheakleyville		5/12/81	0	159,850	159,850	Prod.	M
		Osborn	9/ 6/81	0	4,068	4,068	Prod.	M
	Volant	Pardoe	7/24/81	0	2,823	2,823	Prod.	M
	Wheatland		7/24/63	402,042	98,430	500,472	Prod.	M
	Wolf Creek	Kilgore	10/26/66	713,668	241,367	955,035	Prod.	L
Mercer and Venango	Utica	French Creek	7/26/81	0	0	0	SI	M

Figure 21. *(Continued)*

County	Field	Pool	Discovery date	Cumulative production at end of 1981 (in Mcf*)	Production 1982 (in Mcf*)	Cumulative production at end of 1982 (in Mcf*)	Status of field or pool at end of 1982**	Reservoir***
Potter	Ulysses		10/ 2/39	4,457,380	18,015	4,505,943	Prod.	O
		Newfield	4/ 2/62		30,548			
Somerset	Bakersville		1/14/79	327,572	155,510	483,082	Prod.	O
	Boswell		11/11/58	11,432,518	150,426	11,609,760	Prod.	O
		Edie	10/18/68		4,838			O
		Snyder	6/16/60		21,978			O
	Brier Knob		7/ 4/80	0	0	0	SI	O
	Heckman Hollow		8/16/77	643,751	439,798	1,083,549	Prod.	O
	Kimmel		5/ 9/80	251,302	118,415	369,717	Prod.	O
	Kings Bridge		3/29/81	0	0	0	SI	O
	Rockwood		5/28/79	385,141	23,222	408,363	Prod.	O
		Gebhart	11/26/79	0	0	0	SI	O
	Shade Creek		10/ 3/77	276,826	119,565	396,391	Prod.	O
	Shamrock		5/10/79	1,770,995	300,503	2,071,498	Prod.	O
	Shanksville		9/22/73	4,580,867	323,403	4,904,270	Prod. and aban.	O
	Somerset East		10/ 7/79	0	0	0	SI	O
	Somerset West		1/ 6/78	693,770	401,655	1,095,425	Prod. and SI	O
Tioga	South Wellsboro		2/ 2/82	0	0	0	SI	
Venango	Barkeyville	Duncan	4/ 5/73	124,094	3,714	127,808	Prod.	M
	Cooperstown	Beatty Run	7/30/82	0	0	0	SI	M
	Franklin-Oak Forest	Galloway	11/12/73	65,220	4,911	70,131	Prod.	M
	McCune Run	Canal	5/25/82	0	88,555	88,555	Prod.	M
	Sugar Creek-Niles	Takitezy	7/26/82	0	0	0	SI	M
	Wesley	Irwin	12/ 1/72	314,181	14,763	328,944	Prod.	M
Warren	Columbus	Dewey Corners	2/10/81	0	65,721	65,721	Prod.	M
		Whites Run	10/30/75	6,486	6,814	13,300	Prod.	M
	County Line		1/31/81	0	27,764	27,764	Prod. and SI	M
	Sanford	Trimm	2/19/81	0	3,614	3,614	Prod.	M
	Selkirk	Three Bridge	2/29/81	0	9,178	9,178	Prod.	M
	Stillwater		9/26/79	91,197	145,730	236,927	Prod. and SI	M
		Freehold	8/ 5/80	70,420	91,175	161,595	Prod. and SI	M
		Savko	9/ 5/80	115,189	166,651	281,840	Prod.	M
	Sugar Grove	Loucks	5/ 3/81	0	0	0	SI	M
		Mikrut	7/21/81	0	0	0	SI	M
	Youngsville	Blue Eye	11/ 3/80	0	0	0	SI	M
		Pikes Rocks	5/ 1/81	3,237	11,429	14,666	Prod.	M
Washington	Lone Pine	Glyde	9/ 6/61	142,220	4,825	147,045	Prod.	O
Westmoreland	Crabtree	Dry Ridge	8/25/46	6,122,114	113,687	6,235,801	Prod. and aban.	O
	Linn Run		4/25/79	39,794	69,122	108,916	Prod.	O
	Lycippus	Total	8/17/49	6,682,344	32,467	6,714,811	Prod.	O
		St. Boniface Chapel	9/13/56	5,942,916	32,467	5,975,383	Prod.	O
	Murrysville	Total	11/ 3/1878	770,916	8,004	778,920	Prod.	O
		Duquesne	8/ 8/65	642,799	8,004	650,803	Prod.	O
	New Alexandria	Kahl	10/23/62	11,210,068	62,488	11,272,556	Prod. and SI	O
		Keystone	7/10/81	0	36,693	36,693	Prod.	O
Westmoreland and Somerset	Johnstown	Baldwin	5/22/60	11,680,882	30,784	12,002,504	Prod.	O
		Beck	5/16/57		290,838			
		Williams	2/14/58	18,953,757	117.012	19,070,769	Prod.	O
	Seven Springs	Total	12/ 5/58	7,949,283	80,930	8,030,213	Prod.	O
		Blair Oriskany	12/ 5/58	6,477,453	37,356	6,540,321	Prod.	O
		Tunnel	3/10/65		25,512			
		Myersbrook	7/16/82	0	0	0	SI	
		Seven Springs	8/ 3/66	759,407	18,062	777,469	Prod.	O

*Mcf--thousand cubic feet.
**Aban.=abandoned; gas stor.=gas storage; prod.=producing; SI=shut-in.
***D=Devonian shale (Marcellus Formation); N=Onondaga Formation; O=Oriskany Sandstone; H=Bass Islands Dolomite; L=Lockport Dolomite; M=Medina Group/Tuscarora Formation; C=Cambrian formations.

Figure 22. Deep gas production in Pennsylvania in 1982 by producing formation.

Producing formation	Cumulative production at end of 1981 (in Mcf)	Production in 1982 (in Mcf)	Cumulative production at end of 1982 (in Mcf)
Marcellus Formation (deep black shale)	0	10,000	10,000
Onondaga Limestone	1,279,402	135,720	1,415,122
Oriskany Sandstone and Huntersville Chert	1,244,180,265	7,411,510	1,251,591,775
Bass Islands Dolomite	11,275	858	12,133
Lockport Dolomite	713,668	243,997	957,665
Medina Group	61,219,862	16,356,096	77,575,958
Tuscarora Sandstone	207,435	1,619,869	1,827,304
Gatesburg Formation and Little Falls Dolomite	202,700	500	203,200
TOTAL	1,307,814,607	25,778,550	1,333,593,157

deep reservoirs, both as an annual total and as cumulative totals. Figure 23 illustrates the amount of production, the yearly average unit price, and yearly total values for oil and gas produced in Pennsylvania since 1960.

The drilling depth record for Pennsylvania remains at 21,460 feet, set by the Amoco Production Company #1 Svetz well in Somerset County in 1975. The deepest producing interval in Pennsylvania stands at 11,458 feet from the Tuscarora Sandstone (Lower Silurian) in the Heyn pool, Summit field, Fayette County. This record will probably change in 1983 because of expected production from the Upper Ordovician Bald Eagle Formation in the Texaco U.S.A. #1 Commonwealth of Pennsylvania Tract 285 well in Clinton County.

OIL AND GAS EXPLORATORY AND DEVELOPMENT ACTIVITIES

The Pennsylvania Geological Survey, Oil and Gas Geology Division, uses a classification scheme for exploratory and development drilling which is modified from the definitions used by the Committee on Statistics of Drilling of the American Petroleum Institute/American Association of Petroleum Geologists. All wells reported here are the same as those reported under drilling and completions in the previous section of this report.

Figure 23. Production, unit price, and total value of crude oil and natural gas produced in Pennsylvania, 1960-82.

	CRUDE OIL			NATURAL GAS			
Year	Production* in bbl	Average yearly price ($/bbl)	Total value	Production** in Mcf	Average yearly*** price ($/Mcf)	Total value	Total oil and gas value
1960	5,942,000	$ 4.57	$ 27,154,940	119,671,000	$0.26	$ 31,114,460	$ 58,269,400
1961	5,580,000	$ 4.76	$ 26,560,800	98,318,000	$0.26	$ 25,562,680	$ 52,123,480
1962	5,238,000	$ 4.63	$ 24,251,940	87,308,000	$0.26	$ 22,700,080	$ 46,952,020
1963	5,014,000	$ 4.63	$ 23,214,820	92,340,000	$0.26	$ 24,008,400	$ 47,223,220
1964	5,113,000	$ 4.48	$ 22,906,240	85,322,000	$0.26	$ 22,183,720	$ 45,089,960
1965	4,859,000	$ 4.20	$ 20,407,800	82,668,000	$0.26	$ 21,493,680	$ 41,901,480
1966	4,349,000	$ 4.33	$ 18,831,170	91,365,000	$0.26	$ 23,754,900	$ 42,586,070
1967	4,409,000	$ 4.35	$ 19,179,150	89,966,000	$0.26	$ 23,391,160	$ 42,570,310
1968	4,160,000	$ 4.35	$ 18,096,000	87,987,000	$0.28	$ 24,636,360	$ 42,732,360
1969	4,448,000	$ 4.29	$ 19,081,920	79,134,000	$0.26	$ 20,574,840	$ 39,656,760
1970	4,015,000	$ 4.27	$ 17,144,050	77,535,000	$0.27	$ 20,934,450	$ 38,078,500
1971	3,798,000	$ 4.47	$ 16,977,060	76,451,000	$0.30	$ 22,935,300	$ 39,912,360
1972	3,441,000	$ 4.60	$ 15,828,600	73,958,000	$0.45	$ 33,281,100	$ 49,109,700
1973	3,282,000	$ 5.73	$ 18,805,860	78,514,000	$0.45	$ 35,331,300	$ 54,137,160
1974	3,399,000	$ 8.43	$ 28,653,570	82,735,000	$0.50	$ 41,367,500	$ 70,021,070
1975	3,199,000	$ 9.26	$ 29,622,740	84,772,000	$0.80	$ 67,817,600	$ 97,440,340
1976	2,950,000	$11.51	$ 33,954,500	89,974,000	$0.85	$ 76,477,900	$110,432,400
1977	2,659,000	$14.22	$ 37,810,980	92,293,000	$1.00	$ 92,293,000	$130,103,980
1978	2,820,000	$14.77	$ 41,651,400	97,763,000	$1.25	$122,203,750	$163,855,150
1979	2,817,000	$23.67	$ 66,678,390	96,313,000	$1.40	$134,838,200	$201,516,590
1980	2,940,000	$37.42	$110,014,800	97,439,000	$1.50	$146,158,500	$256,173,300
1981	3,729,000	$36.33	$135,474,570	122,454,000	$2.00	$244,908,000	$380,382,570
1982	4,282,000	$31.42	$134,540,440	121,111,000	$2.80	$339,110,800	$473,651,240

*Oil-production figure courtesy of the American Petroleum Institute Crude Oil Reserve Committee and the Penn Grade Crude Association.

**Gas-production figure courtesy of the American Gas Association.

***Gas prices estimated only.

Figure 24. Exploratory and primary development and drilling footages reported, 1982 and 1981.

Type of Well	1982 Wells	1982 Footage	1981 Wells	1981 Footage	% Change in Footage
Exploratory					
Gas........................	157	750,802	359	1,626,009	
Oil........................	23	33,577	18	28,702	
Oil and gas................	0	0	4	14,166	
Dry........................	34	128,805	24	94,877	
Total (% successful)......	214 (84%)	913,184	405 (94%)	1,763,754	- 48
Development					
Gas........................	1,577	5,989,396	1,318	4,881,843	
Oil........................	2,152	2,189,785	1,623	1,894,939	
Oil and gas................	24	63,657	12	41,347	
Dry........................	75	135,268	65	148,786	
Total (% successful)......	3,828 (98%)	8,378,106	3,018 (98%)	6,966,915	+ 20
Miscellaneous wells					
Service....................	182	211,806	131	276,645	+ 23
TOTAL ALL WELLS DRILLED...	4,224 (97%)	9,503,096	3,554 (97%)	9,007,314	+ 6

EXPLORATORY WELLS

An exploratory well is one that is drilled to: (1) find and produce oil or gas in unproven areas; (2) find a new reservoir in an area previously known to have oil and/or gas production in another reservoir; or (3) extend the known limit of a productive oil or gas reservoir. New field wildcats, new pool wildcats, deeper pool tests, shallower pool tests, and outpost/extension tests make up the exploratory categories. If the well is drilled as an exploratory test and is not completed for production, it is classified as a dry exploratory hole.

In accordance with the general downturn of the national oil and gas industry in 1982, exploratory drilling in Pennsylvania decreased during the year by 47 percent, from 405 wells reported in 1981 to 214 wells reported in 1982. The success rate for these wells was 84 percent, which is also a decrease.

DEVELOPMENT WELLS

A development well is one that is drilled within a proven area of production to a known productive stratigraphic horizon. A producing well in such an area and reservoir is classified as an oil or gas development well. It is considered a dry development well if it is not completed for production. Development drilling in Pennsylvania in 1982 increased by 27 percent, from 3,018 wells in 1981 to 3,828 wells in 1982. The success rate for all development drilling remained at the 98 percent level set in 1981.

Figure 24 summarizes drilling activity in Pennsylvania in 1982 as exploratory, development, or service. Figure 25 shows the breakdown of exploratory drilling by classification. All exploratory successes and the more important exploratory failures of 1982 are illustrated in Figure 26, and these wells are listed in Figures 27 and 28.

HIGHLIGHTS OF 1982 EXPLORATION AND DEVELOPMENT

Drilling in the Upper Devonian Venango Group reservoirs has typically been almost restricted to the western counties of Pennsylvania, and the majority of this drilling has taken place in Venango, Warren, and Forest Counties. In recent years, however, there has been some significant production potential from the Venango Group sands in the traditional Bradford Group fields of Indiana and Clearfield Counties, especially in fields that tend to have fractured reservoirs. This trend continued in 1982. Two of the more interesting wells of this type were the Union Drilling #2 Cramer well and the Atlas Resources #1 Overman well, both in Cherryhill Township, Indiana County. These wells were completed with natural open flows of 10,000 Mcfgpd and 19,500 Mcfgpd, respectively, in the Bayard sand (Lower Venango

Figure 25. Exploratory drilling in Pennsylvania by classification and type of well, 1982.

Classification and type of well	No. of wells	Footage
NEW FIELD WILDCATS		
Gas	11	67,026
Dry	8	38,399
Subtotal	19	105,425
NEW POOL WILDCATS		
Gas	4	25,395
Subtotal	4	25,395
DEEPER POOL TESTS		
Gas	17	90,058
Dry	2	10,955
Subtotal	19	101,013
SHALLOWER POOL TESTS		
Gas	4	18,401
Subtotal	4	18,401
OUTPOST EXTENSIONS		
Gas	121	549,922
Oil	23	33,577
Dry	24	79,451
Subtotal	168	662,950
GRAND TOTAL EXPLORATORY WELLS	214	913,184

Group) of Kenwood field, a typical Bradford Group producing area of eastern Indiana County. Figure 29 shows the relationship between the Venango Group and the remainder of the Upper Devonian in western Pennsylvania.

Other Upper Devonian activity included 4 new fields and pools in Bradford Group sands, 6 new fields and pools in the Elk Group, 1 new field in the Lock Haven Formation, and 1 new pool in the Upper Devonian shales. The Elk Group discoveries are significant in that all but one were in Greene County, an area typified by production from Pennsylvanian, Mississippian, and Venango Group sandstone reservoirs. These Elk Group discoveries represent deeper reservoir tests by a small number of companies, particularly by Kepco, Incorporated, in established Venango Group fields. Open flows are

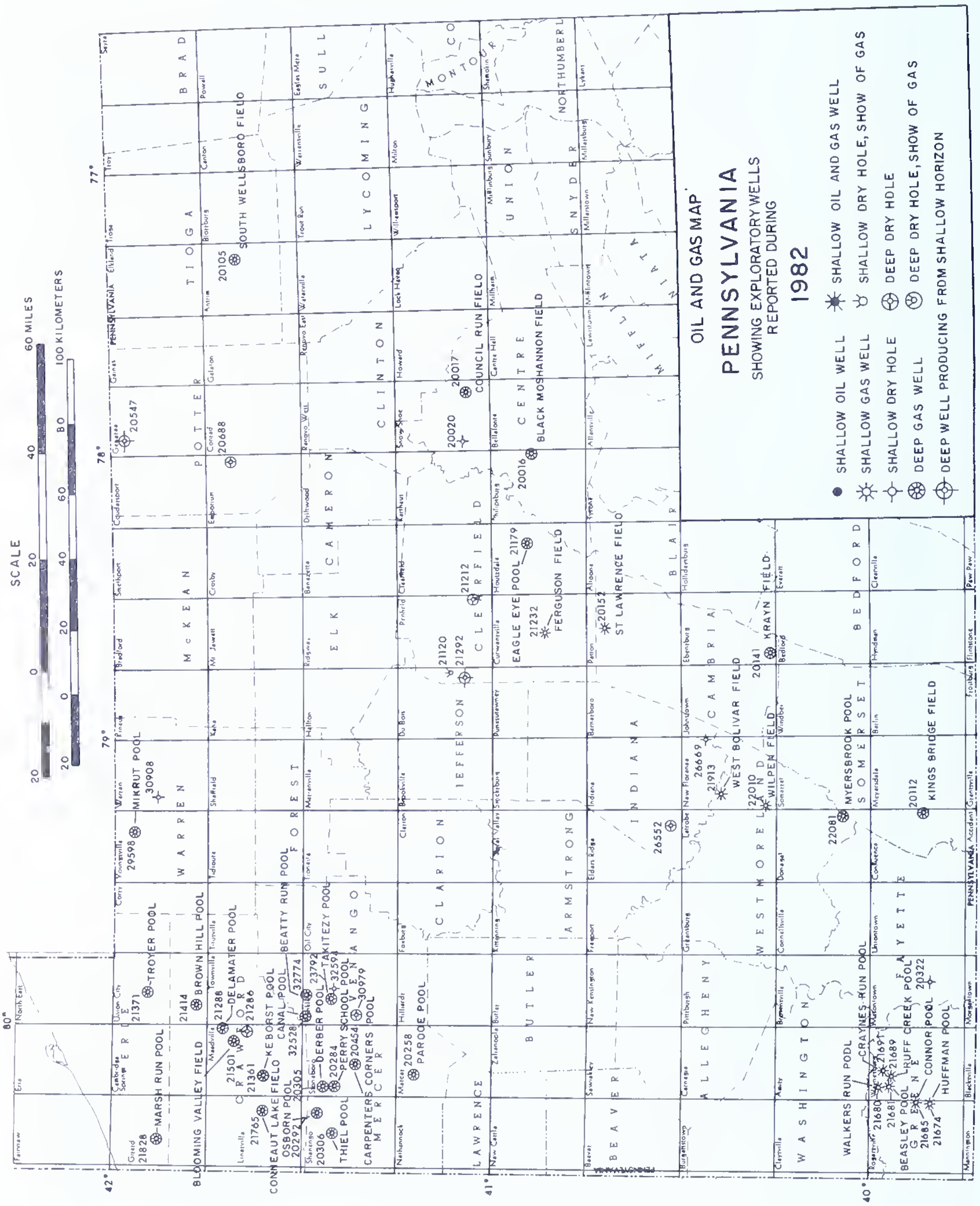

Figure 26. Map of exploratory wells in Pennsylvania reported in 1982.

Figure 27. Reported new field and new pool discoveries in Pennsylvania, 1982.

County and permit no.	Quadrangle	Operator well no. and lease	Completion date (M-Day-Y)	Total depth (feet)	Name of formation at T.D.*	Prod. depth (feet)	Prod. formation or zone*	Initial daily prod. (in Mcf**)	Field or pool name	Explor. class***
Cambria CBA-20141	Beaverdale	Berea Oil and Gas Corp. #1 Cambria Mining Gas Unit B	11-15-81	9,081	Helderberg Gp. (D)	8,794	Driskany (D)	820	Krayn field	NFD
Cambria CBA-20152	Coalport	DorSo Energy #1 Gerald F. Leiden	11- 4-81	3,692	Bradford Gp. (D)	3,416	Bradford Gp. (D)	375	St. Lawrence field	NFD
Centre CEN-20016	Black Moshannon	Amoco Production Company #1 Commonwealth of Pa. Tr. #247	3-31-82	11,462	Juniata (O)	11,394	Tuscarora (S)	700	Black Moshannon field	NFD
Centre CEN-20017	Snow Shoe	Eastern States Exploration #1 Commonwealth of Pa. Tr. #231	7-26-82	4,770	Lock Haven (D)	4,650	Lock Haven (D)	1,958	Council Run field	NFD
Clearfield CLE-21120	DuBois	Triangle Auto Spring Co. #1 Triangle Auto Spring	9-10-81	3,537	Bradford Gp. (D)	2,529	Bradford Gp. (D)	7	Penfield field (noncommercial)	SPD
Clearfield CLE-21179	Wallaceton	Meridian Exploration #605 #1 Power Land Company	12- 6-81	8,453	Tonoloway (S)	8,453	Driskany (D)	326	Eagle Eye pool	SPD
Clearfield CLE-21232	Westover	Delta Drilling, Northeast Prod. #1 V. D. Barrett	12- 5-81	4,962	Bradford Gp. (D)	3,683	Venango Gp. (D)	419	Ferguson field	NFD
Crawford CRA-21288	Blooming Valley	Cabot Oil and Gas Corp. #1 Bernard Tobin	9-11-81	4,722	Queenston (O)	4,722	Medina (S)	1,718	Delamater pool	DPD
Crawford CRA-21361	Geneva	Cabot Oil and Gas Corporation #1 Robert Ackerman	8-14-81	4,875	Queenston (O)	4,732	Medina (S)	832	Keborts pool	DPD
Crawford CRA-21414	Millers Station	Meridian Exploration #600 #1 R. W. Nichols	11-15-81	4,678	Queenston (O)	4,498	Medina (S)	360	Brown Hill pool	DPD
Crawford CRA-21501	Blooming Valley	Berea Oil and Gas Corp. #1 S. Zahniser	2-11-82	4,785	Queenston (O)	4,785	Medina (S)	200	Blooming Valley field	NFD
Crawford CRA-21765	Conneaut Lake	Mitchell Energy Corporation #1 James R. Allen	8- 9-82	4,545	Queenston (O)	4,465	Medina (S)	451	Conneaut Lake field	NFD
Erie ERI-21371	Waterford	Meridian Exploration #581 #1 Daniel Troyer, et ux.	5- 9-81	4,157	Queenston (O)	1,050	Ohio (D)	680	Troyer pool	SPD
Erie ERI-21828	East Springfield	Goe Pro, Incorporated #1 G. and E. Loomis	5-20-82	2,254	Bass Islands (S)	2,203	Keyser (D-S)	5,300	Marsh Run pool	SPD
Greene GRE-21674	Holbrook	Kepco, Incorporated #3 Reed O. Huffman	4- 2-82	5,437	Bradford Gp. (D)	3,491	Bradford Gp. (D)	42	Huffman pool	DPD
Greene GRE-21680	Waynesburg	Kepco, Incorporated #2 John L. Bradley	8-20-82	5,250	Elk Gp. (D)	4,996	Elk Gp. (D)	189	Walkers Run pool	DPD
Greene GRE-21681	Waynesburg NW	Kepco, Incorporated #1 Thomas L. Beasley	4-13-82	5,600	Elk Gp. (D)	5,334	Elk Gp. (D)	634	Beasley pool	DPD
Greene GRE-21685	Holbrook	Kepco, Incorporated #5 Ray L. Connor	5-24-82	5,636	Elk Gp. (D)	5,034	Elk Gp. (D)	215	Connor pool	DPD

Figure 27. *(Continued)*

County and permit no.	Quadrangle	Operator well no. and lease	Completion date (M-Day-Y)	Total depth (feet)	Name of formation at T.D.*	Prod. depth (feet)	Prod. formation or zone*	Initial daily prod. (in Mcf**)	Field or pool name	Explor. class***
Greene GRE-21689	Waynesburg	Kepco, Incorporated #1 Hickman	6-23-82	5,737	Elk Gp. (D)	5,737	Elk Gp. (D)	20	Ruff Creek pool	DPD
Greene GRE-21691	Waynesburg	Kepco, Incorporated #3 M. E. Cole	5- 1-82	5,336	Elk Gp. (D)	4,605	Elk Gp. (D)	491	Craynes Run pool	DPD
Mercer MER-20258	Mercer	Peoples Natural Gas #5529 #1 Albert R. Lengel	7-24-81	6,249	Queenston (O)	6,125	Medina (S)	162	Pardoe pool	DPD
Mercer MER-20284	Hadley	Wainoco Oil and Gas Company #1 Harry M. Kasbee	9-28-81	5,465	Queenston (O)	5,303	Medina (S)	348	Perry School pool	DPD
Mercer MER-20292	Greenville East	Wainoco Oil and Gas Company #1 Harold L. Pfaff	9- 6-81	5,153	Queenston (O)	5,021	Medina (S)	582	Osborn pool	NPD
Mercer MER-20305	Hadley	Wainoco Oil and Gas Company #1 Donald W. Derber	9-13-81	3,645	Helderberg Gp. (D)	3,640	Oriskany (D)	3,550	Derber pool	DPD
Mercer MER-20306	Greenville West	Doran and Associates #K-W-1 #1 Thiel College	10-28-81	4,882	Queenston (O)	4,675	Medina (S)	980	Thiel pool	DPD
Mercer MER-20454	Hadley	Mitchell Energy Corp. #1 S. and W. Slater	9-11-82	5,611	Queenston (O)	5,532	Medina (S)	573	Carpenter Corners pool	DPD
Somerset SOM-20112	Kingwood	Amoco Production Company #1 Herbert Nicholas Gas Unit	3-29-81	8,430	Helderberg Gp. (D)	8,340	Oriskany (D)	220	Kings Bridge field	NFD
Tioga TIO-20105	Antrim	Consolidated Gas Supply #WN-1779 #1 Arthur Knapp	2- 2-82	6,454	Helderberg Gp. (D)	6,452	Oriskany (D)	531	South Wellsboro field	NFD
Venango VEN-32528	Utica	Cabot Oil and Gas Corporation #1 Richard G. Stewart	5-25-82	5,555	Queenston (O)	5,470	Medina (S)	2,870	Canal pool	DPD
Venango VEN-32774	Utica	Cabot Oil and Gas Corporation #1 Bruce W. Krepp	7-30-82	5,451	Queenston (O)	5,302	Medina (S)	1,900	Beatty Run pool	DPD
Venango VEN-32792	Utica	Cabot Oil and Gas Corporation #1-S Pa. Glass Sand Corp.	7-26-82	5,929	Queenston (O)	5,787	Medina (S)	2,000	Takitezy pool	DPD
Warren WAR-29598	Sugar Grove	Sagebrush Resources, Inc. #1 S. Mikrut	7-21-81	4,968	Queenston (O)	4,880	Medina (S)	315	Mikrut pool	NPD
Westmoreland WES-21913	Bolivar	Mid-East Oil Company #1 Cerne-Cambruzzi	10-15-81	4,438	Elk Gp. (D)	3,946	Elk Gp. (D)	189	West Bolivar field	NFD
Westmoreland WES-22010	Wilpen	Peoples Natural Gas Company #1 Arnold Frederick	1-28-82	4,407	Elk Gp. (D)	3,923	Bradford Gp. (D)	411	Wilpen field	NFD
Westmoreland WES-22081	Seven Springs	Peoples Natural Gas Company #1 Eleanor G. Morris	7-16-82	7,965	Helderberg Gp. (D)	7,533	Huntersville (D)	4,000	Myersbrook pool	NPD

*(P)=Pennsylvanian; (D)=Devonian; (S)=Silurian; (O)=Ordovician.

**Mcf--thousand cubic feet.

Figure 28. Selected exploratory failures reported in Pennsylvania, 1982.

County and permit no.	Quadrangle	Operator well no. and lease	Completion date (M-Day-Y)	Total depth (feet)	Name of formation at T.D.*	Explor. class**
Centre CEN-20020	Snow Shoe	Felmont Oil Corp. F-346 #1 William W. Litke	9-17-82	5,171	Brallier (D)	NFW
Clearfield CLE-21292	DuBois	Fairman Drilling F-3466 #1 R. Wesley Smith, et al.	3-18-82	7,309	Oriskany (D)	NPT
Clearfield CLE-21212	Elliot Park	Delta Drilling, Northeast Prod. #1 Commonwealth of PA, 331-332	12-28-81	7,480	Queenston (O)	NFW
Crawford CRA-21286	Blooming Valley	Cabot Oil & Gas Corporation #1 Emily J. State	9-23-81	4,945	Queenston (O)	NFW
Fayette FAY-20322	Smithfield	Ashtola Production Company #1 Wilbur W. Hibbs	8- 4-82	4,211	Bradford Gp. (D)	NFW
Indiana IND-26552	McIntyre	Peoples Natural Gas Co. #5543 #2 W. H. Gemmell	10-16-81	7,750	Helderberg (D)	DPT
Indiana IND-26669	New Florence	Energy Production Company #2 Richard Dale Bloom	1-25-82	3,995	Bradford Gp. (D)	NFW
Potter POT-20547	Ellisburg	Tim-Lec Corporation #1 Moran	12-16-77	5,136	Helderberg (D)	DPT
Potter POT-20688	Austin	Gulf Oil Corporation #1-303 Homer-State	1- 1-82	5,642	Salina (D)	NFW
Venango VEN-30979	Utica	Cabot Oil & Gas Corporation #1 F. Ernst Pardee	11-19-81	6,014	Queenston (O)	NFW
Venango VEN-32594	Utica	Cabot Oil & Gas Corporation #1 PA Glass Sand Corp.	7-12-82	3,205	West Falls (D)	DPT
Warren WAR-30908	Russell	Quaker State Oil Refining Corp. #01 Borland	3- 9-82	941	Bradford Gp. (D)	NFW

*(D)=Devonian; (O)=Ordovician.

**NFW=new field wildcat; NPW=new pool wildcat; DPT=deeper pool test.

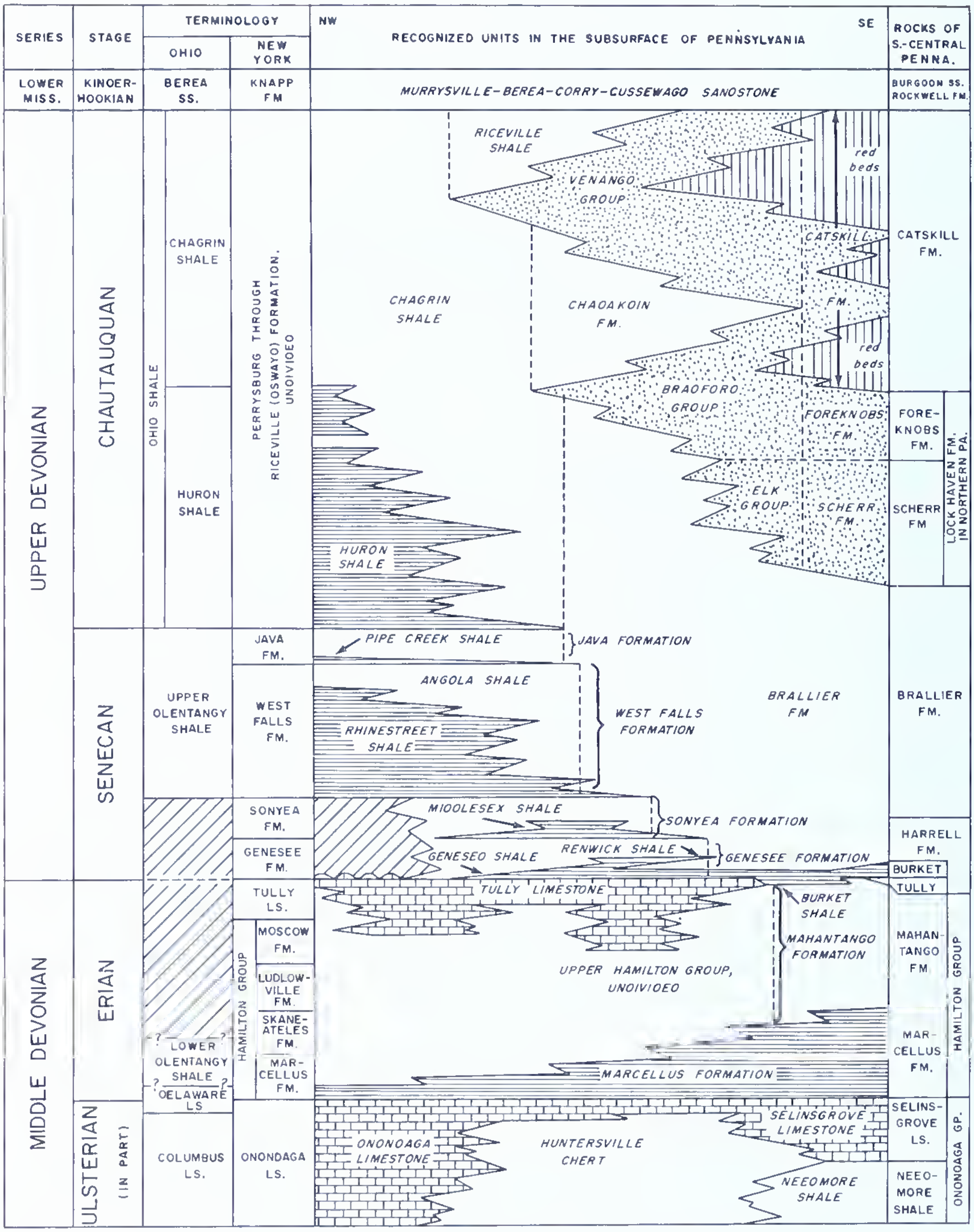

Figure 29. Schematic diagram of Upper and Middle Devonian stratigraphic units from the surface and subsurface of western Pennsylvania.

relatively small, but interest in the area is keen. The new Lock Haven Formation discovery, the Council Run field wildcat, had a natural open flow of 1,958 Mcfgpd from 4,650 feet in Boggs Township, Centre County. The Eastern States Exploration Company #1 Commonwealth of Pennsylvania Tract 231 well was drilled near the structural front of the Allegheny Plateau, and its success is probably the result of fracturing in the Lock Haven sands. The Devonian shale discovery, the Troyer pool in LeBoeuf field, Waterford Township, Erie County, was a shallower pool test in a large Lower Silurian Medina Group producing area. The open flow on the well was small, only 3.2 Mcfgpd (and classed as noncommercial), but the pool represents an interesting discovery in the shales much further south and east than is normal for Pennsylvania. Most shale-well drilling in the past 120 years has centered on the Lake Erie shoreline, and this trend has seen a recent resurgence as many homeowners and small businesses, disturbed by rapidly rising utility bills, had wells drilled in their back yards to meet domestic gas needs. The cost of drilling a shallow shale well, about 900 feet deep, is estimated at about the price of a new full-sized automobile. There were 25 Devonian shale wells (Ohio Shale production) reported in Erie County in 1982.

For the past 7 or 8 years, drilling for Middle Devonian Huntersville Chert and/or Lower Devonian Oriskany Sandstone reservoirs has been centered in Somerset County. However, in 1982 only two Huntersville/Oriskany wells were reported from Somerset County, representing a single new field discovery and an unsuccessful extension of that field. The Kings Bridge field was discovered by the Amoco Production Company #1 Nicholas Gas Unit in Middlecreek Township. The well was completed by open-hole stimulation between 8,100 and 8,340 feet for an open flow of 220 Mcfgpd. Other Huntersville/Oriskany discoveries of significance include the Derber pool, Sheakleyville field, Mercer County; South Wellsboro field, Tioga County; and Myersbrook pool, Seven Springs field, Westmoreland County. The Derber pool discovery is of special interest because it was planned as an Oriskany test in an area where the sand is thin and patchy and has a notorious history of blowing gas for a limited time before quickly watering out. The Wainoco Oil and Gas Company #1 Derber well had a natural open flow of 3,550 Mcfgpd from the Oriskany at 3,640 feet and produced over 154,000 Mcf and an unknown quantity of natural-gas liquids in 1982, indicating that the Oriskany still has potential in northwestern Pennsylvania. The South Wellsboro field was discovered by the Consolidated Gas Supply #1 Knapp well in Delmar Township, and is the first Oriskany discovery in Tioga County since the mid-1930's. The well had a natural open flow of 531 Mcfgpd, which is interesting in view of the fact that the well was originally completed as a dry hole in 1981. Consolidated reevaluated the well and perforated the formation in two 6-foot zones at 6,430 and 6,446 feet. Myersbrook pool in Westmoreland County was a discovery of the Peoples Natural Gas #1 Morris well, which flowed 4,000 Mcfgpd natural production from the Huntersville Chert at 7,533 feet. Other Huntersville/Oriskany discoveries were made in Cambria and Clearfield Counties.

In 1981, operators in Chautauqua County, New York, discovered a trend in the Upper Silurian-Lower Devonian Bass Islands Dolomite which has drawn much attention. The high-potential oil and gas wells (the discovery well blew out, but was reported to have produced oil at the rate of about 200 barrels per day) apparently follow a trend that suggests fractured reservoirs along a known fault system extending from Erie County, New York, to Erie County, Pennsylvania. Although the fault system and its inherent production potential are suggested to extend into Pennsylvania, the system has not yet been conclusively indentified and traced in the Commonwealth. Nonetheless, the Bass Islands was the subject of a new pool discovery in the Conneaut field of western Erie County in 1982, possibly on line with the trend. The Goe Pro, Incorporated #1 Loomis well, originally scheduled as a Medina development well in Conneaut Township, encountered an open flow of 5,300 Mcfgpd from the (questionable) Bass Islands at 2,203 feet. There are no logs available on this well, and the designation of Bass Islands is questionable simply because of the difficulty many drillers have in picking formation tops in Erie and Crawford Counties. The names Oriskany, Bass Islands, and Salina are commonly misapplied in this area. Future correlations will be necessary to determine the proper reservoir nomenclature for this well, and whether it represents production from an extension of the New York fault system.

Deep exploration and development drilling was concentrated in the Lower Silurian Medina Group in 1982, continuing the trend set in the late 1970's. Designation of the Medina as a tight formation by the Federal Energy Regulatory Commission in 1981 spurred drilling in the first half of 1982, but the decline in the economy and a subsequent shut-in of gas wells by the utilities and pipeline companies led to a significant decline in Medina drilling in the second half, particularly in previously developed areas. Medina drilling increased slightly in Erie County, decreased slightly in Crawford and Warren Counties, and jumped dramatically in Mercer and Venango Counties. The 17 wells (and their subsequent three deeper pool discoveries) reported in Venango County are the first Medina wells drilled in that county since the early 1970's.

The Lower Silurian Tuscarora Sandstone continues to draw attention in central Pennsylvania since the discovery of the Devils Elbow field in Centre County in 1977. In 1982, Amoco Production Company discovered the Black Moshannon field at 11,394 feet in the #1 Commonwealth of Pennsylvania Tract 247 well in Moshannon State Forest. Unlike the Devils Elbow field discovery, however, the Black Moshannon field discovery flowed only 700 Mcfgpd after treatment.

The most significant exploratory drilling in Pennsylvania in 1982 was the Texaco U.S.A. #1 Commonwealth of Pennsylvania Tract 285 well in Grugan Township, Clinton County. Drilling and initial evaluation of the well were completed as of the end of 1982, but no official well record had been received by the Bureau of Oil and Gas Management. The well penetrated 19,265 feet for the second-deepest drilling depth in the state. The formation at total depth is not known for certain, although it is safe to say that it was Cambrian or Lower Ordovician in age, but the production is from the Upper Ordovician Bald Eagle Formation. The Bald Eagle is a sandy facies of the Martinsburg Shale. This is the first reported production from the Bald Eagle in Pennsylvania.

GEOPHYSICAL ACTIVITY IN PENNSYLVANIA

The seismograph is the principal nondrilling exploratory tool used in Pennsylvania for the exploration of oil and gas. The use of seismic tools is advantageous in that it can give approximate to excellent indications of the attitude of rocks (whether they are folded, faulted, tilted, or flat lying) and the depth of potential hydrocarbon reservoirs by measuring the travel time for vibrations generated at the surface to reach the rock. Mechanically generated seismic pulses, especially Vibroseis, and explosive techniques, principally dynamite, are the most widely used in Pennsylvania. Seismic work is typically performed by contracted crews and the intensity of activity is measured in crew-months.

Seismic activity in Pennsylvania decreased in 1982, down 38 percent to 34 crew-months from the 54.75 crew-months reported in 1981. Companies involved in seismic activity included major oil companies, large independents, and small independents; they were Amoco Production Company, Arco Oil and Gas Company, Berea Oil and Gas Company, CNG Corporation, Delta Drilling Company, Exxon Corporation, and a reported group-shoot involving Gulf Oil Corporation, Hanley and Bird, National Fuel Gas Company, and Pennzoil Company. There was also a speculative survey with Sohio as the major partner. Surveys were reported in Bedford, Blair, Cambria, Cameron, Centre, Clearfield, Clinton, Dauphin, Elk, Fayette, Franklin, Fulton, Huntingdon, Indiana, Juniata, Lycoming, McKean, Mercer, Mifflin, Perry, Potter, Somerset, Susquehanna, and Westmoreland Counties. Seismic surveys cost the participating companies approximately $8,500,000 in 1982, averaging $250,000 per crew per month.

ACTIVITIES ON STATE LANDS

At the end of 1982 there were 42 active oil and/or gas leases on Pennsylvania Game Commission lands. The leases covered about 46,000 acres. Only 13 of the leases contained the 38 active wells, which produced a total of 341,340 Mcf, generating $44,795 in royalties and $74,365 in ground rentals. Very little oil (less than 20 bbl) was produced during the year. The Game Commission offered no new leases in 1982.

Total income from oil and gas activities on Pennsylvania State Forest and Park lands during 1982 amounted to $4,914,334. This income came from rentals, including bonuses from lease sales, royalties, gas-storage rentals, pipeline and compressor-station rentals, and seismic surveys. Royalty payments for the year amounted to $63,401 for 343,098 Mcf of gas produced on State land or from unitized acreage. Rentals for existing exploratory acreage and past leasing programs totaled $4,096,290, and gas-storage rentals totaled $740,971. Other income for seismic surveys and for pipeline and compressor-station rentals totaled $13,672.

During 1982 there were 120 individual tracts totaling 450,615 acres offered for lease to industry. Of this total, 51 tracts comprising 158,145 acres were successfully bid on and placed under lease.

At the end of 1982 a total of 798,301 acres of State Forest and Park lands was under lease for oil and gas exploration and development. Another 100,493 acres was under lease for gas storage.

PROJECTS IN PROGRESS IN 1982, OIL AND GAS GEOLOGY DIVISION

COMBINED REVISION OF FILING AND BASE-MAP PROCEDURES

The Pennsylvania Geological Survey completed its 15-minute base-map series in 1981, and in 1982 began a program of revision that includes not only the base maps, but the well-record system also. The revision program, which is expected to take three to five years to complete, includes: (1) conversion of the oil and gas well record files from the old Survey file-number system to the more realistic permit-number system used by the Bureau of Oil and Gas Management and other state agencies; and (2) modification of the completed oil and gas base map series from 15-minute scale to 7½-minute scale. The present base maps each encompass four 15-minute (1:62,500 scale) topographic maps but show only a 5-minute grid system, quadrangle names, county boundaries, and the major waterways and towns as background. The new base maps will be actual topographic maps at a scale of 1:24,000 and will each represent 1/16 of the area covered by an old base map. The two phases of the program are being carried out almost simultaneously. The well record files and 7½-minute office work maps receive first treatment, and the revisions are made alphabetically by county. After the sixteen 7½-minute maps that are included in the area covered by one of the old base maps have been completed, the well locations will be transferred to a 7½-minute topographic quadrangle mylar from which ozalid prints can be run. These mylars are expected to be updated at least once a month. When the 16 maps are completed, the 15-minute map will be taken out of print. The revised maps will then be offered as open-file maps. Instructions for ordering will be published in a future issue of *Pennsylvania Geology*. Until that time, paper prints of the 15-minute base maps may be obtained by writing to the State Book Store, P. O. Box 1365, Harrisburg, Pennsylvania 17105. The cost of each base map is $1.40, plus 6 percent sales tax to Pennsylvania residents. A check for the appropriate total amount, made payable to Commonwealth of Pennsylvania, must accompany the order. When ordering, please specify the map number.

OPEN-FILE REPORTS AND OTHER DATA AVAILABLE

The following reports and other data are available on open file at the Pennsylvania Geological Survey, Oil and Gas Geology Division, 7th Floor, Highland Building, 121 South Highland Avenue, Pittsburgh, Pennsylvania 15206.

(1) *Surface to Middle Devonian (Onondagan) Stratigraphy, Part I (STOMDES),* 1972, by D. R. Kelley and W. R. Wagner, 15 p., 8 cross sections, vertical scale 1 inch = 100 feet.

(2) *Deep Sand Exploration and Gas Developments in Pennsylvania,* 1982, by Lajos J. Balogh, 2 map sheets, scale 1:250,000 (updated periodically).

(3) *Salina or Equivalent and Deeper Penetrations of Pennsylvania,* 1973, by D. R. Kelley and L. J. Balogh, 1 map, scale 1:500,000 (updated periodically).

(4) *Tully and Deeper Formations, Brine Analysis of Pennsylvania,* 1973, by D. R. Kelley and L. A. Heeren, 1 chart and map, scale 1:500,000.

(5) *Stratigraphic Framework of the Greater Pittsburgh Area, Parts I and II,* 1972, by W. R. Wagner and W. S. Lytle, 20 p., 9 sections in 13 sheets.

(6) *Active Gas Storage Areas Map of Pennsylvania,* 1981, by L. J. Balogh, 1 map, scale 1:500,000 (updated as needed).

(7) *Subsurface Rock Correlation Diagram, Allegheny Plateau, Pennsylvania,* 1979, by J. A. Harper, 1 sheet.

There are also over 37,500 drillers' records and logs, along with approximately 4,200 mechanical logs on open file at the Pennsylvania Geological Survey's Pittsburgh office. Approximately 44,000 well-data cards, compiled by the U.S. Geological Survey and the Pennsylvania Geological Survey between 1900 and 1970 as the bases of topographic map quadrangle reports, are also on open file. In addition, the Survey has a sample library containing drill cuttings from approximately 1,200 wells, and a core-storage library containing cores from 39 wells, including the five wells cored under the U.S.

Department of Energy's Eastern Gas Shales Program. All cuttings and cores are available for inspection and study.

REPORTS PUBLISHED

Oil and Gas Fields Map

A new edition of Map 3, *Oil and Gas Fields of Pennsylvania,* has been published by the Bureau of Topographic and Geologic Survey. The map shows the locations of 1,077 formally recognized fields and pools in the state as of July 1, 1981. It is the most detailed and up-to-date map available of Pennsylvania's oil and gas fields and pools and natural-gas storage areas. With the exception of the storage areas, no attempt was made to show which of the fields and pools are presently active. The map shows the general producing reservoir for each field and pool, an innovation for Pennsylvania's fields map. Thirteen general reservoir units, ranging in age from Cambrian to Pennsylvanian, are identified by variations in pattern and tone of the primary colors of red for natural gas and green for oil. The accompanying legend lists the formation names and drillers' sand names for each of these general units. The list of field and pool names also indicates the reported dates of discovery and the major and subsidiary reservoir units for each field and pool.

The new detailed oil and gas fields map is published in two sheets at a scale of 1:250,000 (1 inch equals approximately 4 miles). The cost of the map through the mail is $4.20 plus $0.26 tax for Pennsylvania residents. Across the counter, the map sells for $3.40 plus $0.21 tax for Pennsylvania residents.

Oil and Gas Pipelines Maps

The Bureau of Topographic and Geologic Survey has published Map 62, *Natural Gas Pipelines and Crude Oil Pipelines of Pennsylvania.* The publication consists of two maps, both at a scale of 1:500,000 (1 inch equals approximately 8 miles), showing the locations of the major trunk lines for natural gas and crude oil in the Commonwealth, as well as identifier codes and pipe sizes.

Map 62 is a recent update of the maps originally published on the reverse side of Map 3, *Oil and Gas Fields of Pennsylvania.* The cost of the publication is $5.60 over the counter plus $0.34 tax for Pennsylvania residents. Through the mail, Map 62 costs $6.25 plus $0.38 tax for Pennsylvania residents.

Both of the maps described above can be obtained by sending a check made payable to the "Commonwealth of Pennsylvania" for the correct amount to Department of General Services, State Book Store, P. O. Box 1365, Harrisburg, PA 17105.

ACTIVITIES OF THE BUREAU OF OIL AND GAS MANAGEMENT

SUMMARY OF REGULATORY FUNCTIONS

In August 1982, the Oil and Gas Regulation Division, Bureau of Topographic and Geologic Survey, became a separate bureau in the Department of Environmental Resources. The newly designated Bureau of Oil and Gas Management continues to function much as it did during its tenure as a division of the Survey, administering several different laws affecting the oil and gas industry. Act 225 regulates the permitting of oil and gas wells, the underground storage of gas, mining around wells, and the methods of casing and plugging oil and gas wells. Act 359, known as the Oil and Gas Conservation Law, provides for spacing, unitization, and the protection of rights of oil and gas owners. This law deals only with wells that are both 3,800 feet deep or greater and penetrate the Middle Devonian Onondaga Group or its equivalent. Act 38 relates to underground gas storage and the rights and protection of persons living within the boundaries of underground gas-storage areas. The work of the Bureau of Oil and Gas Management during 1982 is summarized in Figures 30 and 31.

ACTIVITIES OF THE NATURAL GAS POLICY ACT (NGPA) SECTION

The Natural Gas Policy Act (NGPA) is part of the national energy program signed into law in 1978. The act provides for the gradual deregulation of natural-gas prices by 1985. The Bureau of Oil and Gas Management, Pennsylvania Department of Environmental Resources, was empowered to review well-classification applications for NGPA as required by the Federal Energy Regulatory Commission (FERC). The staff of the NGPA section of the bureau processes applications for NGPA well classifications by examining data each applicant submits in order to justify the category for which he seeks a determination. The staff is involved with making determinations of four basic well categories applicable to Pennsylvania: (1) Section 102, New, natural gas; (2) Section 103, New, onshore production wells; (3) Section 107, High-cost gas; and (4) Section 108, Stripper gas. Three of these sections have subsections, each with its own price ceiling set by federal law. The staff reviews each application to determine whether the data submitted are sufficient to meet the NGPA requirements for the preferred classification.

The applicant must submit a $50.00 filing fee for each well-determination application to cover the state cost of administering the program. In addition, he must complete and submit Pennsylvania forms and FERC Form 121, along with geologic, engineering, and production data to support the re-

Figure 30. Summary of activities of the Bureau of Oil and Gas Management, 1956-82.

	Cumulative from 1956-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	Grand Total 1956-82
1. Drilling permits issued in coal areas	4,394	322	342	469	694	648	916	782	1,166	1,429	1,332	1,359	1,703	1,474	17,030
2. Drilling permits issued coal areas, Act 359	224	16	10	16	11	15	26	12	27	21	42	23	26	28	497
3. Total wells, coal areas (items 1 and 2)	4,618	338	352	485	705	663	942	794	1,193	1,450	1,374	1,382	1,729	1,502	17,527
4. Drilling permits issued in noncoal areas	1,103	914	956	1,247	1,522	1,364	1,042	1,381	1,510	1,806	2,348	5,079	5,933	5,838	32,043
5. Drilling permits issued in noncoal areas, Act 359	214	9	12	37	61	34	23	15	51	93	182	482	946	991	3,150
6. Total permits issued (items 3, 4, and 5)	5,935	1,261	1,320	1,769	2,288	2,061	2,007	2,190	2,754	3,349	3,904	6,943	8,608	8,331	52,720
7. Reported wells in noncoal areas — file numbers issued	8,202*	27*	2*	10*	0	0	0	0	0	0	0	0	0	0	8,241*
8. Total wells, noncoal areas (items 4, 5, and 7)	9,519	950	970	1,294	1,583	1,398	1,065	1,396	1,561	1,899	2,530	5,561	6,879	6,829	43,434
9. Total wells, coal and noncoal areas (items 6 and 7)	4,137	1,288	1,322	1,779	2,288	2,061	2,007	2,190	2,754	3,349	3,904	6,943	8,608	8,331	60,961
10. Total drilling permits issued, Act 359 (items 2 and 5)	438	25	22	53	72	49	49	27	78	114	224	505	972	1,019	3,647
11. Drilling cancelled permits and noncoal file numbers	1,108	244	236	169	327	597	383	667	469	412	467	616	859	2,065	8,619
12. Plugging numbers issued	6,374	1,721	1,383	1,860	1,681	1,511	1,630	1,959	1,300	2,057	1,225	1,069	1,228	1,551	26,549
13. Plugging numbers cancelled	318	119	116	83	180	112	119	92	71	60	66	25	57	47	1,465
14. Wells reported plugged and abandoned	5,142	992	1,573	1,317	1,410	1,089	1,284	1,493	1,144	991	1,307	959	802	1,000	20,503
15. Pillar permits issued	2,131	164	105	142	96	96	94	104	125	83	150	141	163	152	3,746
16. Pillar permits cancelled	18	0	0	1	0	1	0	2	0	0	0	0	0	0	22

Act 359 of 1961 — Oil and Gas Conservation Law, approved July 25, 1961. Effective date September 25, 1961.

*Prior to September 30, 1968, permits were not required for wells in noncoal areas, except those wells coming within purview of Act 359 of 1961. Act 265, approved July 31, 1968, effective September 30, 1968 — requires permits to be issued for all wells.

Figure 31. Summary of activities of the Bureau of Oil and Gas Management by county, 1982.

County	Permits issued coal areas	Permits issued noncoal areas	Drilling cancelled	Plugging numbers issued	Plugging cancelled	Wells reported plugged and abandoned	Pillar permits issued	DRILLING PERMITS ISSUED Act 359 of 1961 coal areas	noncoal areas
Allegheny	6	4	7	18	0	13	19	0	0
Armstrong	56	1	48	27	0	20	31	0	0
Beaver	1	18	4	3	0	3	0	0	0
Bedford	1	0	0	0	0	0	0	1	0
Butler	19	7	9	20	0	8	12	0	0
Cambria	40	0	28	4	0	0	0	0	0
Cameron	0	1	0	0	0	1	0	0	1
Centre	7	0	2	2	0	1	0	3	0
Chester	0	5	0	0	0	0	0	0	0
Clarion	22	88	64	26	3	13	0	1	0
Clearfield	271	0	81	13	0	5	0	3	0
Clinton	0	22	41	0	0	0	0	0	0
Crawford	0	391	321	12	0	4	0	0	342
Elk	0	145	35	68	6	63	0	0	0
Erie	0	789	88	4	0	5	0	0	384
Fayette	52	0	5	10	0	5	0	1	0
Forest	0	574	151	80	0	68	0	0	0
Greene	104	1	11	17	4	11	32	2	0
Indiana	589	0	90	14	0	12	36	3	0
Jefferson	166	46	91	28	0	16	3	0	0
Lawrence	0	2	0	0	0	0	0	0	0
Lycoming	0	1	1	1	0	1	0	0	1
McKean	0	733	58	600	23	394	0	0	3
Mercer	0	103	74	12	0	14	0	0	98
Mifflin	0	1	0	1	0	0	0	0	0
Potter	0	28	12	5	0	3	0	0	0
Somerset	5	1	2	5	0	1	1	5	1
Tioga	0	1	0	0	0	0	0	0	0
Venango	5	2,143	424	464	7	264	0	0	41
Warren	0	1,723	314	83	1	44	0	0	119
Washington	19	0	25	6	2	10	18	7	0
Westmoreland	139	1	79	28	1	21	0	2	1
TOTAL	1,502	6,829	2,065	1,551	47	1,000	152	28	991

quested classification. A backlog of approximately 30 applications was on file at the end of 1982, and more applications continue to be filed every day.

Figure 32 lists the actions taken by the staff in making well-classification determinations for the year 1982.

Figure 32. Well-classification determinations made under the federal Natural Gas Policy Act, 1982.

Category	No. of Applications	Approved	Disapproved
102	861	843	18
103	1,211	1,203	8
107	978	975	3
108	5,118	5,112	6

SUMMARIZED RECORDS OF REPORTED DEEP WELLS* IN 1982

The information shown in Figure 34 was compiled mainly from drillers' logs, location plats, and geophysical logs received from the Bureau of Oil and Gas Management, as well as personal communication with oil and gas operators. Well records are filed with the Bureau of Oil and Gas Management by permit numbers. The Oil and Gas Geology Division, Bureau of Topographic and Geologic Survey, files the records in order by county, 7½-minute topographic map, and permit number. The Division used to assign a file number separate from the permit number, and these file numbers appear on many of the open-file reports and published maps of the Survey (see Projects in Progress in 1982, Oil and Gas Geology Division, page 42). However, this action was abandoned in January 1982, and all well records will henceforth be referred to by permit number.

Most of the formation tops and total depths recorded in Figure 34 were picked from mechanical logs of many varieties (see Figure 33 for lists of these logs and their abbreviations). The logs received for a particular well are listed in Figure 34 along with the logged interval. Lack of this information indicates that no mechanical logs were received and formation picks were taken directly from the drillers' logs. The tables are listed alphabetically by county and numerically by permit number.

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*Wells that penetrate rocks of Middle Devonian or older age.

Figure 33. Types of mechanical logs and abbreviations.

Caliper	CAL
Casing collar log and perforating record	CCL/PR
Cement bond log (seismic spectrum)	CBL/SS
Compensated neutron	CNL
Continuous dipmeter	DIP
Continuous directional	CDR
Density borehole compensated	DBC
Dual laterolog	DLL
Epthermal neutron porosity	ENP
Formation density	FDC
Gamma ray	GR
High-resolution continuous dipmeter	HDT
Induction log	IL
Laserlog	Laser
Perforating depth control	PDC
Perforating collar log	PCL
Radioactive tracer	Tracer
Radioactive	R
Sibilation	S
Sonic	SON
Sidewall neutron porosity	SNP
Temperature	T

Figure 34. Summarized records of reported deep wells in 1982 that penetrated rocks of Middle Devonian or older age.

COUNTY Permit Number	Cambria 20141	Cameron 20068-P	Centre 20015	Centre 20016	Clearfield 21179	Clearfield 21212	Clearfield 21292	Crawford 20630	Crawford 20623	Crawford 20700
NAME OF WELL	Cambria Mining Gas Unit 'B' #1	PA State Forest #6246	Donald C. Shawley #1	Commonwealth of PA Tract 247 #1	Power Land Co. #1	Commonwealth of PA 331-332, Unit #1	R. Wesley Smith et al #1	Stephen Dillinger #1	A. Miller #1	Allen Harvey #1
OPERATOR	Berea Oil and Gas Corporation	National Fuel Gas Supply Corporation	Amoco Production Company	Amoco Production Company	Meridian Exploration #605	Delta Drilling Company	Fairman Drilling Company	Cardinal Oil Company #9	Cardinal Oil Company #3	Cabot Oil & Gas Corporation
TOWNSHIP	Adams	Shippen	Boggs	Rush	Decatur	Pine	Sandy	Spring	Spring	East Fairfield
QUADRANGLE	Beaverdale	Cameron	Bellefonte	Black Moshannon	Wallaceton	Elliot Park	DuBois	Conneautville	Conneautville	Cochranton
LATITUDE	8,700 ft. S 40°17'30"	9,375 ft. S 41°30'00"	5,200 ft. S 41°00'00"	6,550 ft. S 40°55'00"	1,575 ft. S 40°55'00"	7,450 ft. S 41°05'00"	4,300 ft. S 41°05'00"	2,660 ft. S 41°50'00"	4,000 ft. S 41°50'00"	12,950 ft. S 41°35'00"
LONGITUDE	11,350 ft. W 78°40'00"	8,600 ft. W 78°12'30"	7,150 ft. W 77°47'30"	4,830 ft. W 78°00'00"	8,800 ft. W 78°17'30"	2,500 ft. W 78°30'00"	590 ft. W 78°47'30"	2,700 ft. W 80°17'30"	7,840 ft. W 80°17'30"	9,300 ft. W 80°02'30"
DATE COMPLETED	11-15-81	7-16-82	11-27-81	3-31-82	12-6-81	12-26-81	3-18-82	9-17-80	9-25-80	8-15-80
ELEVATION	2633 GR	1738 GR	1457 GR	2019 GR	1808 GR	2125 GR	15[illegible] GR	1157 GR	1183 GR	1300 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/SS: 6340-8894	GR/IL 760-6865 GR/CAL: 0-6548 FDC: 0-6876			FDC/GR. 0-8445 DIL 1933-8442 CCL/PR: 0-8445 SNP/CAL: 1933-8445	CNL/FDC. 60-7475 DLL: 60-7475 GR: 60-7428	ID: 1400-3997 CDL: 3768-7252 CDL/T: 1400-3993 ID/GR: 3786-7248	FDC/GR. 2150-3863	FDC/GR: 2200-3896	GR: 4700-5055
TULLY	8560-	6213-			7008-	6363-	6674-	2215-	2250-	
ONONDAGA LIMESTONE CHERT	8669-	6828-			7931-	7292-	7237-	2404-	2432-	
ORISKANY	8778-	6853-			8022-	7373-				
HELDERBERG KEYSER-BASS ISLANDS	8830-				8033- 8072-	7391-		2617-	2649-	
SALINA GUELPH-LOCKPORT					Tonoloway 8259-			2692- 3300-	[illegible]- 3326-	
CLINTON IRONDEQUOIT								3524- 3592-	3560- 3633-	4744- 4805-
MEDINA GRIMSBY WHIRLPOOL								3637- 3650- 3800-	3668- 3711- 3835-	4859- 4900- 4990-
QUEENSTON								3806-	3841-	5000-
PRODUCING FORMATION	Oriskany			Tuscarora	Bradford, Huntersville, Oriskany		Bradford	Medina	Medina	Medina
PRODUCING INTERVAL	8786-8794			11,072-11,394	2553-8089		2962-2966	3647-3728	3686-384[illegible]	4901-4996
TOTAL DEPTH	9066	6876	9108	11,462	8453	7480	7309	3879	3929	5167
DEEPEST FORMATION REACHED	Helderberg	Oriskany		Tuscarora	Tonoloway	Helderberg	Oriskany	Queenston	Queenston	Queenston
RESULTS	250 Mcf Nat. 820 Mcf AF 2,200 psi/48 hrs. New field discovery Krayn field	Dry hole development Canoe Run field	Dry and abandoned extension Runville field	700 Mcf AF 5,952 psi/60 days New field discovery Black Moshannon field	326 Mcf AF 1,600 psi/168 hrs. Shallow pool test Eagle Eye pool West Decatur field	Plugged and abandoned New field wildcat	73 Mcf AF 990 psi/7 days unnamed shallow pool discovery dry in deep zones Penfield field	951 Mcf AF 1,100 psi/3 days development Indian Springs pool Conneaut field	90 Mcf AF 1,110 psi/2 days development Lundys Lane pool Conneaut field	1,660 Mcf AF 1,400 psi/72 hrs. development East Fairfield pool Kantz Corners field

COUNTY Permit Number	Crawford 20714	Crawford 20770	Crawford 20850	Crawford 20863	Crawford 20879	Crawford 20888	Crawford 20911	Crawford 20912	Crawford 20939	Crawford 20961
NAME OF WELL	Kenwyn Burns #1	John W. Kort #1	Arthur Helmbreck #1	Chester Tau #1	Walter Bayus #1	Ernest B. Shreve #1	M. L. Bunting #1	M. L. Bunting #2	George R. Petrus #1	Lawrence & Betty Miller #2
OPERATOR	Cardinal Oil Company #80	Cardinal Oil Company #41	Northwest Natural Gas Company	Cardinal Oil Company #62	Cardinal Oil Company #70	Wainoco Oil & Gas Company	Cardinal Oil Company #42	Cardinal Oil Company #43	Cardinal Oil Company #46	Northwest Natural Gas Company
TOWNSHIP	Spring	Cussewago	Spring	Cussewago	Cussewago	Bloomfield	Spring	Spring	Spring	Spring
QUADRANGLE	Conneautville	Conneautville	Beaver Center	Conneautville	Conneautville	Lake Canadohta	Conneautville	Conneautville	Conneautville	Beaver Center
LATITUDE	9,640 ft. S 41°50'00"	3,860 ft. S 41°50'00"	12,650 ft. S 41°52'30"	3,050 ft. S 41°50'00"	14,600 ft. S 41°52'30"	250 ft. S 41°50'00"	2,000 ft. S 41°50'00"	2,760 ft. S 41°50'00"	9,380 ft. S 41°52'30"	15,000 ft. 41°52'30"
LONGITUDE	11,320 ft. W 80°20'00"	3,500 ft. W 80°15'00"	1,800 ft. W 80°22'30"	2,400 ft. W 80°15'00"	3,800 ft. W 80°15'00"	7,950 ft. W 79°47'30"	10,340 ft. W 80°17'30"	9,520 ft. W 80°17'30"	1,250 ft. W 80°17'30"	2,050 ft. W 80°22'30"
DATE COMPLETED	7-15-80	9-18-80	10-21-80	10-7-80	11-4-80	10-9-80	1-26-81	1-22-81	2-22-81	11-21-80
ELEVATION	917 GR	1220 GR	1055 GR	1200 GR	1140 GR	1560 GR	1181 GR	1170 GR	1135 GR	1045 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 1950-3622	FDC/GR: 2300-3970	GR: 1950-3698	FDC/GR: 2250-3921 GR/PDC: 3600-3919	FDC/GR: 2150-3661		FDC/GR: 2200-3848	FDC/GR: 2200-3882	FDC/GR: 2100-3815	GR: 1950-363
TULLY		2329-	2036-	2264-	2194-	3030-	2232-	223[illegible]-	2172-	[illegible]
ONONDAGA LIMESTONE CHERT	2148-	2514-	2206-	2453-	2387-	3267-	2413-	2416-	[illegible]	2196-
ORISKANY						3418-		2651-		
HELDERBERG KEYSER-BASS ISLANDS	2375-	2729-	2438-	2668-	2616-		2647-	2664-	2574-	2427-
SALINA GUELPH-LOCKPORT	2447- 3073-	2810- 3358-	2490- 3127-	2743- 3342-	2705- 3286-	3742-	2712- 3300-	2714- 3270-	2647- 3200-	2485- 3114-
CLINTON IRONDEQUOIT	3300- 3375-	3605- 3676-	3325- 3430-	3578- 3652-	3540- 3591-	4367- 4424-	3532- 3602-	3540- 3606-	3470- 3539-	3327- 3434-
MEDINA GRIMSB. WHIRLPOOL	3411- 3432- 3582-	3714- 3732- 3883-	3457- 3470- 3625-	3696- 3708- 3856-	3628- 3649- 3794-	4465- 4627-	3638- 3660- 3810-	3645- 3714- 3814-	3578- 3616- 3746-	3459- 3463-
QUEENSTON	3590-	3891-	3646-	3862-	3894-	4642-	3819-	38[illegible]1-	[illegible]	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3436-3587	3757-3840	not reported	3705-3861	3650-3799	4501-4636	3664-3719	3600-3724	3593-3689	3517-3639
TOTAL DEPTH	3630	4006	3707	3930	3864	4804	3840	3830	3815	365[illegible]
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Medina
RESULTS	3,000 Mcf AF 1,130 psi/3 days development Springboro pool Conneaut field	940 Mcf AF 800 psi/3 days development Indian Springs pool Conneaut field	105 Mcf Nat. 950 psi/120 hrs. development Lundys Lane pool Conneaut field	39 Mcf AF 1,200 psi/48 hrs. development Indian Springs pool Conneaut field	543 Mcf AF 1,150 psi/48 hrs. development Indian Springs pool Conneaut field	32 Mcf AF 1,30 psi/72 hrs. development Hutch Hill pool Athens field	1,980 Mcf AF 1,325 psi/72 hrs. development Lundys Lane pool Conneaut field	147 Mcf AF 900 psi/72 hrs. development Lundys Lane pool Conneaut field	1,105 Mcf AF 1,100 psi/48 hrs. development Pageville pool Conneaut field	1,300 Mcf AF 1,030 psi/48 hrs. development Lundys Lane pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21094	Crawford 21096	Crawford 21099	Crawford 21104	Crawford 21135	Crawford 21136	Crawford 21139	Crawford 21140	Crawford 21142	Crawford 21143
NAME OF WELL	Bubna-Proper #1	James Papenfuse #1	Antoni W. Pelc #2	Martin R. Greishaw, Jr. #1	William J. Stapf #1	James L. Burgess #1	Jerry G. Kerr #1	Terry L. Miller #1	Ernest Shreve #2	Charlotte Cornish #1
OPERATOR	Cardinal Oil Company	Cabot Oil & Gas Corporation	Wainoco Oil & Gas Company #W-93	Wainoco Oil and Gas Company	Wainoco Oil & Gas Company #W-104	Wainoco Oil & Gas Company #W-105	Wainoco Oil & Gas Company #W-108	Wainoco Oil & Gas Company #W-109	Wainoco Oil & Gas Company #W-112	Wainoco Oil & Gas Company #W-111
TOWNSHIP	Spring	East Mead	Bloomfield	Bloomfield	Bloomfield	Bloomfield	Bloomfield	Bloomfield	Bloomfield	Bloomfield
QUADRANGLE	Beaver Center	Cochranton	Lake Canadohta	Lake Canadohta	Lake Canadohta	Lake Canadohta	Lake Canadohta	Lake Canadohta	Lake Canadohta	Lake Canadohta
LATITUDE	12,140 ft. S 41°50'00"	5,800 ft. S 41°37'30"	9,450 ft. S 41°50'00"	100 ft. S 41°50'00"	11,300 ft. S 41°50'00"	13,000 ft. S 41°50'00"	1,300 ft. S 41°47'30"	12,100 ft. S 41°50'00"	3,400 ft. S 41°50'00"	9,300 ft. S 41°50'00"
LONGITUDE	6,600 ft. W 80°22'30"	5,000 ft. W 80°02'30	6,300 ft. W 79°45'00"	5,050 ft. W 79°47'30"	8,550 ft. W 79°47'30"	6,600 ft. W 79°47'30"	1,600 ft. W 79°47'30"	1,450 ft. W 79°47'30"	6,000 ft. W 79°47'30"	9,300 ft. W 79°47'30"
DATE COMPLETED	3-11-81	2-16-81	2-12-81	2-25-81	5-25-81	5-18-81	5-3-81	3-3-81	4-27-81	4-27-81
ELEVATION	1048 GR	1440 GR	1470 GR	1590 GR	1470 GR	1460 GR	1430 GR	1390 GR	1550 GR	1490 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC: 2000-3780	FDC/GR: 0-5088 CAL/CCL: 15-5048 IL/SNL: 0-790 LL: 0-5085	LL 447-4867 CBL 3750-4730	FDC/GR/LL: 2800-4847 GO/R: 2800-4847	FDC/LL: 0-4749 PDC: 4350-4719	FDC/LL: 0-4815 PDC: 4530-4659	FDC/GR 0-4852 PCL: 4558-4696 LL: 399-4849 Laser: 4480-4750	FDC/GR. 0-4741 LL: 4738-4743 Laser: 4600-4640	FDC/GR: 492-4801 PCL: 4738-4743 LL: 491-4802 Laser: 4450-4490	LL: 490-4775 Laser: 4400-4770
TULLY	2078-	3252-	3065-	3079-	3020-	3032-	3067-	2993-	3054-	3029-
ONONDAGA LIMESTONE CHERT	2252-	3452-	3301-	3319-	3257-	3268-	3302-	3229-	3294-	3266-
ORISKANY		3638-								
HELDERBERG KEYSER-BASS ISLANDS	2494-	3657- 3698-	3471-	3499-	3436-	3444-	3480-	3401-	3420-	3444-
SALINA GUELPH-LOCKPORT	2572- 3204-	3742- 4430-	3528- 4158-	3550- 4123-	3488- 4090-	3496- 4112-	3542- 4148-	3456- 4046-	3524- 4126-	3496- 4116-
CLINTON IRONDEQUOIT	3438- 3506-	4717- 4778-	4344- 4484-	4407- 4468-	4334- 4434-	4344- 4443-	4378- 4482-	4309- 4410-	4357- 4453-	4346- 4445-
MEDINA GRIMSBY WHIRLPOOL	3534- 3535- 3719-	4828- 4878- 5006-	4508- 4514- 4692-	4508- 4543- 4670-	4458- 4465- 4634-	4490- 4515- 4648-	4506- 4523- 4688-	4433- 4447- 4616-	4477- 4484- 4657-	4469- 4484- 4651-
QUEENSTON	3726-	5020-	4705-	4681-	4649-	4666-	4702-	4633-	4668-	4662-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3567-3624	4881-4949	4576-4655	4516-4680	4525-4646	4531-4659	4854-4696	4520-4552	4500-4664	4523-4658
TOTAL DEPTH	3802	5020	4872	4854	4756	4822	4854	4743	4802	4784
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,030 Mcf AF 1,140 psi/7 days development Indian Springs pool Conneaut field	Show of gas development Papenfuse field	6,200 Mcf AF 1,285 psi/72 hrs. development Dutch Hill pool Athens field	IP not available 1,050 psi/72 hrs. development Dutch Hill pool Athens field	198 Mcf AF 1,190 psi/10 days development Dutch Hill pool Athens field	4,421 Mcf AF 1,270 psi/72 hrs. development Lincolnville pool Athens field	179 Mcf AF 1,260 psi/240 hrs. development Lincolnville pool Athens field	7,583 Mcf AF 1,320 psi/10 days development Dutch Hill pool Athens field	746 Mcf AF 1,290 psi/72 hrs. development Dutch Hill pool Athens field	866 Mcf AF 1,260 psi/72 hrs. development Dutch Hill pool Athens field

COUNTY Permit Number	Crawford 21144	Crawford 21145	Crawford 21172	Crawford 21174	Crawford 21200	Crawford 21202	Crawford 21211	Crawford 21215	Crawford 21216	Crawford 21217
NAME OF WELL	Neil E. Parkin #1	James E. Lewis #1	George Law #2	George Law #4	W. Holland #1	L. Hutchinson #1	George Hough #1	Joseph W. Miller #2	Arthur H. Textor #1	Ward A. Cullers #1
OPERATOR	Wainoco Oil & Gas Company #W-113	Wainoco Oil & Gas Company #W-114	G. P. Oil and Gas, Incorporated	G. P. Oil and Gas, Incorporated	Berea Oil and Gas Corporation	Berea Oil and Gas Corporation	Cabot Oil & Gas Corporation	Wainoco Oil and Gas Company	Center Bar Gas Company	Center Bar Gas Company
TOWNSHIP	Bloomfield	Bloomfield	Beaver	Beaver	Woodcock	Richmond	Randolph	Bloomfield	Beaver	Beaver
QUADRANGLE	Lake Canadohta	Lake Canadohta	Beaver Center	Beaver Center	Blooming Valley	Blooming Valley	Sugar Lake	Lake Canadohta	Beaver Center	Beaver Center
LATITUDE	7,650 ft. S 41°50'00"	75 ft. S 41°47'30"	14,325 ft. S 41°52'30"	1,300 ft. S 41°50'00"	2,800 ft. S 41°45'00"	1,390 ft. S 41°45'00"	5,700 ft. S 41°37'30"	6,300 ft. S 41°50'00"	10,700 ft. S 41°52'30"	11,800 ft. S 41°52'30"
LONGITUDE	1,400 ft. W 79°47'30"	4,550 ft. W 79°47'30"	2,000 ft. W 80°27'30"	2,325 ft. W 80°27'30"	2,400 ft. W 80°02'30"	4,850 ft. W 80°00'00"	6,700 ft. W 79°57'30"	8,500 ft. W 79°47'30"	1,450 ft. W 80°25'00"	400 ft. W 80°25'00"
DATE COMPLETED	4-20-81	5-13-81	5-23-82	11-8-81	7-2-81	6-14-81	6-23-81	6-1-81	11-9-81	11-12-81
ELEVATION	1590 GR	1435 GR	981 GR	981 GR	1259 GR	1616 GR	1460 GR	1470 GR	940 GR	875 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC: 531-4944 LL: 24-4940 PCL: 4616-4782 Laser: 4560-4925	FDC/GR: 444-4817 PCL: 4523-4665				GR/COR/CAL: 0-4872 Tracer: 4500-4810 CBL: 3000-4853	FDC/GR: 0-5204	FDC/GR: 460-4770 Laser: 4420-4772	FDC: 1900-3582	FDC: 1800-3488
TULLY	3156-	3022-			2726-	3125-	3386-	2995-	1940-	1874-
ONONDAGA LIMESTONE CHERT	3394-	3255-	2133-2416		2934-	3332-	3602-	3229-	2107-	2041-
ORISKANY			2416-2442			3518-	3774-			
HELDERBERG KEYSER-BASS ISLANDS	3566-	3427-	2442-2674	2116-3258		3532-	3794-	3406-	2346-	2303-
SALINA GUELPH-LOCKPORT	3620- 4248-	3485- 4109-	2674-	2722-2930 3000-3258	3350- 3840-	3582- 4250-	3874- 4520-	3460- 4076-	2428- 2950-	2379- 2916-
CLINTON IRONDEQUOIT	4460- 4561-	4341- 4442-	3314-3340	3326-3366	4090- 4178-	4470- 4578-	4775- 4904-	4342- 4415-	3212- 3284-	3174- 3228
MEDINA GRIMSBY WHIRLPOOL	4585- 4592- 4769-	4466- 4474- 4648-	3360- 3520-3528	3374- 3530-3540	4210- 4394-	4603- 4611- 4787-	4933- 4943- 5130-	4429- 4466- 4610-	3307- 3311- 3484-	3253- 3288- 3433-
QUEENSTON	4774-	4668-	3528-3592	3540-	4408-	4801-	5145-	4620-	3492-	3440-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4648-4782	4523-4667	3413-3526	3382-3534	4250-4405	4666-4788	4881-4974	4473-4603	3353-3432	3273-3385
TOTAL DEPTH	4948	4823	3592	3595	4506	4892	5206	4772	3595	3494
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,739 Mcf AF 1,275 psi/72 hrs. development Dutch Hill pool Athens field	1,550 Mcf AF 1,285 psi/72 hrs. development Lincolnville pool Athens field	750 Mcf Af 1,200 psi/48 hrs. development Mud Run pool Conneaut field	725 Mcf Af 1,150 psi/48 hrs. development Mud Run pool Conneaut field	10 Mcf AF 350 psi/72 hrs. non-commercial extension Zirkle pool Richmond Township field	10 Mcf AF 350 psi/72 hrs. non-commercial development Zirkle pool Richmond Township field	Show of gas extension Guys Mills pool Frenchtown field	IP not available RP not available development Dutch Hill pool Athens field	362 Mcf AF 1,050 psi/3 days extension Bushnell-Lexington pool Conneaut field	2,163 Mcf AF 975 psi/2 days development Bushnell-Lexington pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21218	Crawford 21223	Crawford 21224	Crawford 21232	Crawford 21252	Crawford 21261	Crawford 21265	Crawford 21270	Crawford 21286	Crawford 21288
NAME OF WELL	Theodore W. Loepp #1	Ervin A. Helmuth #1	James L. Love #1	Paul Inguls #2	Leon P. Sanborn #1	Richard W. Roeder #1	Isabel Kindervater #1	David G. Thomas #1	Emily J. State #1	Bernard Tobin #1
OPERATOR	Center Bar Gas Company	Wainoco Oil & Gas Company #W-92	Wainoco Oil & Gas Company #W-100	Cardinal Oil Company #9	Wainoco Oil & Gas Company #W-116	Wainoco Oil & Gas Company #W-117	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Beaver	Bloomfield	Sparta	Spring	Rome	Rome	East Mead	Woodcock	East Mead	Richmond
QUADRANGLE	Beaver Center	Lake Canadohta	Spartansburg	Conneautville	Titusville North	Titusville North	Blooming Valley	Blooming Valley	Blooming Valley	Blooming Valley
LATITUDE	14,620 ft. S 41°52'30"	50 ft. S 41°50'00"	2,500 ft. S 41°47'30"	11,300 ft. S 41°50'00"	1,700 ft. S 41°45'00"	7,000 ft. S 41°45'00"	14,200 ft. S 41°40'00"	1,250 ft. S 41°45'00"	4,400 ft. S 41°40'00"	150 ft. S 41°42'30"
LONGITUDE	10,760 ft. W 80°22'30"	1,800 ft. W 79°47'40"	10,400 ft. W 79°42'30"	2,600 ft. W 80°17'30"	8,350 ft. W 79°42'30"	1,950 ft. W 79°37'30"	8,750 ft. W 80°02'30"	7,500 ft. W 80°02'30"	1,800 ft. W 80°02'30"	3,900 ft. W 80°00'00"
DATE COMPLETED	11-8-81	6-7-81	6-14-81	6-14-81	6-23-81	8-3-81	7-25-81	8-22-81	9-23-81	9-11-81
ELEVATION	870 GR	1530 GR	1560 GR	1140 GR	1435 GR	1600 GR	1550 GR	1240 GR	1470 GR	1390 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC 1800-3478	FDC/GR: 471-4805	FDC/GR. 472-5050	FDC/GR. 2200-3774 GR: 3600-3926	FDC/GR 0-5081	FDC/SNL 485-5436 LL/GR: 0-5433 Laser: 5150-5300	FDC/GR: 872-5104 LL: 872-5107	GR/T 500-3025	CCL: 0-520 GR/FDC/CNL: 0-4920	GR/T/S: 423-3261 FDC/SNP 500-4724 LL. 50-4724 GR/CCL 4350-4676
TULLY	1856-	3043-	3244-	2266-	3256-	3588-	3283-	2657-	3117-	3000-
ONONDAGA LIMESTONE CHERT	2028-	3284-	3483-	2450-	3500-	3848-	3460-	2860-	3316-	3206-
ORISKANY						3989-	3665-		3505-	
HELDERBERG KEYSER-BASS ISLANDS	2292-	3461-	3650-	2651-	3670-	3994-	3679-	3066-	3519-	3402-
SALINA GUELPH-LOCKPORT	2360- 2932-	3514- 4121-	3713- 4332-	2718- 3336-	3738- 4370-	4060- 4707-	3759- 4462-	3330- 3728-	3601- 4296-	3480- 4175-
CLINTON IRONDEQUOIT	3183- 3238-	4342- 4436-	4610- 4683-	3605- 3658-	4636- 4701-	5001- 5072-	4674- 4795-	4070- 4126-	4486- 4620-	4324- 4457-
MEDINA GRIMSBY WHIRLPOOL	3263- 3267- 3440-	4460- 4466- 4641-	4732- 4768- 4892-	3703- 3718- 3864-	4741- 4797- 4916-	5116- 5160- 5284-	4823- 4832- 5018-	4166- 4339-	4646- 4656- 4842-	4483- 4492- 4671-
QUEENSTON	3447-	4658-	4909-	3874-	4929-	5294-	5035-	4350-	4857-	4684-
PRODUCING FORMATION	Medina	Medina	4763-4904	Medina	Medina	Medina				Medina
PRODUCING INTERVAL	3290-3346	4529-4639	Medina	3741-3780	4756-4933	5132-5264				4533-4609
TOTAL DEPTH	3474	4687	5052	3950	5081	5438	5105	4420	4945	4722
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	39 Mcf AF 650 psi/2 days extension Stone Run pool Conneaut field	253 Mcf AF 1,280 psi/10 days development Dutch Hill pool Athens field	4,950 Mcf AF 1,350 psi/24 hrs. extension Brimstone pool Athens field	153 Mcf AF 1,010 psi/120 hrs. development Indian Springs pool Conneaut field	603 Mcf AF 1,330 psi/72 hrs. development Rome pool Athens field	412 Mcf AF 1,315 psi/72 hrs. development Vrooman pool Church Run field	Show of Gas extension Papenfuse field	Show of Gas extension Woodcock pool Richmond Township field	Show of gas New field wildcat	1,718 Mcf AF 1,180 psi/72 hrs. Deeper pool discovery Delamater pool Randolph field

COUNTY Permit Number	Crawford 21291	Crawford 21296	Crawford 21298	Crawford 21306	Crawford 21324	Crawford 21325	Crawford 21326	Crawford 21331	Crawford 21334	Crawford 21335
NAME OF WELL	George W. Bancroft #1	Gerald J. Elliott #2	Betty Jordan #2	Douglas & Francis Sessions #1	Riverside Inn Enterprises #2	Edward Nosko #1	Mary T. Cowden #1	William Mohl #1	William Henning #1	William Henning #1
OPERATOR	Wainoco Oil and Gas Company	Cardinal Oil Company #23	Cardinal Oil Company	Northwest Natural Gas Company	Meridian Exploration #577	Meridian Exploration #569	Meridian Exploration #571	Cabot Oil & Gas Corporation	Meridian Exploration #573	Meridian Exploration #572
TOWNSHIP	Athens	Cussewago	Spring	Spring	Cambridge	Rockdale	Rockdale	Richmond	Rockdale	Rockdale
QUADRANGLE	Lake Canadohta	Conneautville	Beaver Center	Conneautville	Cambridge Springs	Cambridge Springs	Cambridge Springs	Townville	Cambridge Springs	Cambridge Springs
LATITUDE	10,650 ft. S 41°47'30"	12,700 ft. S 41°50'00"	13,200 ft. S 41°52'30"	14,100 ft. S 41°52'30"	8,800 ft. S 41°50'00"	13,600 ft. S 41°50'00"	12,200 ft. S 41°50'00"	9,200 ft. S 41°42'30"	13,800 ft. S 41°50'00"	11,200 ft 41°50'00"
LONGITUDE	3,750 ft. W 79°50'00"	2,520 ft. W 80°15'00"	7,160 ft. W 80°22'30"	700 ft. W 80°20'00"	1,750 ft. W 80°02'30"	7,200 ft. W 80°00'00"	4,600 ft. W 80°00'00"	9,400 ft. W 79°55'00"	3,400 ft. W 80°00'00"	2,100 ft. W 80°00'00"
DATE COMPLETED	8-10-81	8-7-81	10-18-81	11-13-81	7-27-81	8-12-81	10-11-81	8-30-81	10-3-81	9-24-81
ELEVATION	1495 GR	1320 GR	865 GR	1170 GR	1130 GR	1160 GR	1150 GR	1465 GR	1150 GR	1145 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 465-4970 LL: 465-4970 Laser: 4580-4970	FDC/GR: 2450-4152	FDC: 1800-3462	GR: 2100-3782	PDC: 3880-4041 CNL/FDC/GR: 0-4160 D: 3300-3939 LL: 2170-4144	CNL/FDC/GR: 0-4205 LL: 2150-4194 PDC: 3400-4140	DLL: 2190-4190 PDC: 3900-4150 FDC/GR: 100-4202	FDC/GR: 0-4991 GR/GD: 526-4987 GR/T/S: 450-3516 GR: 4550-4958	PDC: 3880-4160 DLL: 2188-4188 FDC/GR: 0-4204	FDC/GR: 0-4187 PDC: 3700-4161
TULLY	3158-	2498-	1843-	2186-	2436-	2504-	2494-	3228-	2510-	2496-
ONONDAGA LIMESTONE CHERT	3391-	2682-	2023-	2368-	2650-	2716-	2708-	3446-	2720-	2712-
ORISKANY										
HELDERBERG KEYSER-BASS ISLANDS	3563-	2880-	2230-	2668-	2840-	2907-	2896	3618-	2900-	2896-
SALINA GUELPH-LOCKPORT	3625- 4232-	2950- 3540-	2282- 2924-	2690- 3250-	2910- 3530-	2980- 3620-	2966- 3600-	3694- 4345-	2976- 3620-	2967- 3550-
CLINTON IRONDEQUOIT	4509- 4584-	3816- 3887-	3172- 3228-	3513- 3583-	3772- 3856-	3854- 3934-	3864- 3921-	4556- 4680-	3861- 3939-	3850 390[illegible]-
MEDINA GRIMSBY WHIRLPOOL	4607- 4624- 4796-	3929- 3956- 4094-	3254- 3258- 3434-	3618- 3655-	3894- 3933- 4002-	3974- 4030- 4142-	3962- 4008- 4124-	4706- 4716- 4897-	3973- 4034- 4138-	394[illegible] 397[illegible]- 41[illegible]
QUEENSTON	4807-	4104-	3439-		4074-	4155-	4136-	4914-	4152-	41[illegible]
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina		Medina	Medina
PRODUCING INTERVAL	4674-4750	3968-4044	33[illegible]1-3384	3655-3696	3936-4001	4034-4076	4010-4080		4035-4070	4002-406[illegible]
TOTAL DEPTH	4970	4166	3478	3790	4193	4266	4225	4991	4260	41[illegible]
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Medina	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	984 Mcf AF 1,20[illegible] psi/72 hrs. development Athens field	84 Mcf AF 700 psi/48 hrs. development Indian Springs pool Conneaut field	674 Mcf AF 1,000 psi/2 days development Pennside pool Conneaut field	1,300 Mcf AF 1,050 psi/48 hrs. development Lundys Lane pool Conneaut field	102 Mcf AF 1,180 psi/7 days development Cambridge Springs field	100 Mcf Nat. 761 Mcf AF 1,200 psi/7 days development Cambridge Springs field	330 Mcf AF 1,175 psi/7 days development Cambridge Springs field	Show of gas extension Delamater pool Randolph field	4[illegible]0 Mcf AF 1,210 psi/7 days development Rockdale field	129 Mcf [illegible] 1,2[illegible]0 psi/7 [illegible] development Rockdale field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21336	Crawford 21337	Crawford 21339	Crawford 21340	Crawford 21344	Crawford 21347	Crawford 21348	Crawford 21350	Crawford 21351	Crawford 21352
NAME OF WELL	Larry McDuff et ux #1	Jimmy & Joyce Chapman #1	George Thumm #1	C. & S. Coon #1	R. & G. Keene Unit #1	Wayne L. Bancroft #1	Gerald F. Fuller #2	Joseph Moreland #2	Andy N. Gingerich #2	H. Richard Van Tassel #1
OPERATOR	Meridian Exploration #575	Northwest Natural Gas Company	Meridian Exploration #574	Mitchell Energy Corporation #96	Mitchell Energy Corporation	Wainoco Oil and Gas Company	Cardinal Oil Company #33	Cardinal Oil Company #28	Wainoco Oil and Gas Company	Wainoco Oil and Gas Company
TOWNSHIP	Rockdale	Spring	Rockdale	Cussewago	Summerhill	Bloomfield	Cussewago	Cussewago	Sparta	Sparta
QUADRANGLE	Cambridge Springs	Conneautville	Cambridge Springs	Edinboro South	Harmonsburg	Lake Canadohta	Edinboro South	Edinboro South	Lake Canadohta	Lake Canadohta
LATITUDE	650 ft. S 41°47'30"	15,050 ft. S 41°52'30"	12,400 ft. S 41°50'00"	2,750 ft. S 41°47'30"	5,000 ft. S 41°45'00"	12,500 ft. S 41°50'00"	11,020 ft. S 41°52'30"	5,160 ft. S 41°50'00"	4,000 ft. S 41°47'30"	12,000 ft. S 41°50'00"
LONGITUDE	3,900 ft. W 80°00'00"	5,000 ft. W 80°17'30"	500 ft. W 80°00'00"	6,600 ft. W 80°10'00"	3,200 ft. W 80°20'00"	7,450 ft. W 79°45'00"	10,800 ft. W 80°12'30"	6,860 ft. W 80°12'30"	2,400 ft. W 79°45'00"	4,400 ft. W 79°45'00"
DATE COMPLETED	10-20-81	11-20-81	9-10-81	10-26-81	10-1-81	8-29-81	9-5-81	9-27-81	9-21-81	8-23-81
ELEVATION	1170 GR	1130 GR	1150 GR	1374 GR	1045 GR	1505 GR	1180 GR	1120 GR	1500 GR	1555 GR
LOGS RECEIVED AND LOGGED INTERVALS	DLL 2100-4210 FDC/GR: 0-4219 PDC: 3950-4170 CCL/PR: 4053-4136	GR: 2150-3755	FDC/GR: 0-4223 DLL: 2200-4206 PDC: 3900-4180	FDC/SNL: 20-4290 LL/GR: 300-4390	FDC/SNL/GR: 293-4011 LL: 10-4004 Laser: 2434-2721	FDC/SNL/GR. 517-4905 LL: 0-4901 Laser: 4580-4906	FDC/GR: 2200-2784	FDC: 2200-3904	FDC/SNL/GR: 523-5008 LL: 0-5004 Laser: 4688-5009	FDC/SNL/GR: 523-4984 LL: 523-4984
TULLY	2540-	2179-	2511-	2605-	2268-	3130-	2236-	2222-	3186-	3182-
ONONDAGA LIMESTONE CHERT	2750-	2372-	2725-	2794-	2433-	3367-	2430-	2416-	3422-	3416-
ORISKANY				2989-					3594-	3587-
HELDERBERG KEYSER-BASS ISLANDS	2936-	2608-	2911-	2995-	2628-	3537-	2666-	2620-	3606-	3600-
SALINA GUELPH-LOCKPORT	3006- 3664-	2702- 3200-	2981- 3600-	3060- 3702-	2712- 3361-	3593- 4212-	2720-	2710- 3298-	3665- 4248-	3645- 4234-
CLINTON IRONDEQUOIT	3924- 3980-	3482- 3553-	3842- 3922-	3960- 4015-	3650- 3705-	4468- 4547-		3547- 3621-	4548- 4616-	4524- 4603-
MEDINA GRIMSBY WHIRLPOOL	4024- 4046- 4130-	3596- 3675-	3946- 3956- 4127-	4052- 4074- 4224-	3731- 3737- 3918-	4570- 4586- 4753-		3658- 3722- 3824-	4666- 4693- 4824-	4651- 4678- 4811-
QUEENSTON	4200-		4138-	4229-	3923-	4770-		3834-	4834-	4823-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4053-4136	3639-3670	4018-4067	4057-4227	3763-3922	4645-4777	3716-3755	3679-3742	4713-4776	4658-4823
TOTAL DEPTH	4282	3763	4226	4300	4033	4906	3960	3918	5006	4985
DEEPEST FORMATION REACHED	Queenston	Medina	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	144 Mcf AF 1,210 psi/7 days development Rockdale field	1,100 Mcf AF 1,050 psi/48 hrs. development Lundys Lane pool Conneaut field	127 Mcf AF 1,175 psi/10 days development Rockdale field	734 Mcf AF 1,195 psi/23 days extension Kastle pool Conneaut field	125 Mcf AF 1,100 psi/136 hrs. development Indian Springs pool Conneaut field	660 Mcf AF 1,290 psi/72 hrs. development Brimstone pool Athens field	424 Mcf AF 1,140 psi/48 hrs, development Pageville pool Conneaut field	697 Mcf AF 1,025 psi/72 hrs. development Indian Springs pool Conneaut field	4,953 Mcf AF 1,275 psi/72 hrs. development Brimstone pool Athens field	1,780 Mcf AF 1,275 psi/72 hrs. development Brimstone pool Athens field

COUNTY Permit Number	Crawford 21353	Crawford 21361	Crawford 21362	Crawford 21364	Crawford 21366	Crawford 21374	Crawford 21375	Crawford 21376	Crawford 21377	Crawford 21379
NAME OF WELL	Charles D. Wetherbee #1	Robert Ackerman #1	Riverside Inn Unit #1	Robert Ewig #2	Robert Hitchcock #1	Edwin A. Ertman #2	Sammie Brown #1	O. Ferris, et ux #1	J. Marzka #1	Robert J. Slencak #1
OPERATOR	Wainoco Oil & Gas Company #W-98	Cabot Oil & Gas Corporation	Meridian Exploration #576	Cardinal Oil Company #30	Ingram Enterprises Incorporated	Cardinal Oil Company #37	Meridian Exploration Corporation #593	Meridian Exploration Corporation #592	Meridian Exploration Corporation #594	Meridian Exploration #585
TOWNSHIP	Sparta	Union	Cambridge	Beaver	Cussewago	Cussewago	Rockdale	Rockdale	Rockdale	Venango
QUADRANGLE	Lake Canadohta	Geneva	Cambridge Springs	Beaver Center	Edinboro South	Conneautville	Millers Station	Millers Station	Millers Station	Cambridge Springs
LATITUDE	12,200 ft. S 41°50'00"	8,100 ft. S 41°37'30"	6,500 ft. S 41°50'00"	560 ft. S 41°47'30"	1,250 ft. S 41°50'00"	11,860 ft. S 41°50'00"	2,200 ft. S 41°50'00"	10,000 ft. S 41°50'00"	5,900 ft. S 41°50'00"	11,350 ft. S 41°52'30"
LONGITUDE	600 ft. W 79°45'00"	3,900 ft. W 80°10'00"	1,700 ft. W 80°02'30"	250 ft. W 80°25'00"	3,150 ft. W 80°10'00"	5,000 ft. W 80°15'00"	4,400 ft. W 79°55'00"	400 ft. W 79°57'30"	6,900 ft. W 79°55'00"	1,100 ft. W 80°05'00"
DATE COMPLETED	8-17-81	8-14-81	10-31-81	9-18-81	10-5-81	1-14-82	8-20-81	8-27-81	9-3-81	9-22-81
ELEVATION	1500 GR	1395 GR	1140 GR	1055 GR	1465 GR	1285 GR	1440 GR	1260 GR	1380 GR	1165 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL: 522-4940 IL/GR: 30-4940 PDC: 4450-4784 Laser. 4600-4800	T/S/GR: 0-3321	FDC/GR: 0-4128 DLL: 3210-4114 PDC: 3800-4084	GR: 2050-3801	FDC/GR: 300-4254	GR: 2400-4058	FDC/GR: 0-4501 DLL: 2170-4488 PDC: 4150-4446	FDC/GR: 0-4337 DLL: 2300-4313 CCL/PR: 4140-4227 PDC: 3930-4367	FDC/GR: 0-4409 DLL: 2393-4393 PDC: 4050-4381 CCL/PR: 4234-4362	FDC/GR: 0-4106 DLL: 3344-4087 PDC: 3700-4038 CCL/PR· 3856-3969
TULLY	3146-	3026-	2431-	2102-	2582-	2432-	2816-	2650-	2750-	2351-
ONONDAGA LIMESTONE CHERT	3386-	321[illegible]-	2642-	2268-	2790-	2613-	3040-	2868-	2972-	2566-
ORISKANY				2508-	3016-					
HELDERBERG KEYSER-BASS ISLANDS	3554-		2837-	2514-	3026-	2811-	3228-	3051-	3156-	2807-
SALINA GUELPH-LOCKPORT	3613- 4238-		2906- 3530-	2594- 3222-	3093- 3694-	2891- 3500-	3286- 3822-	3114 3664-	3220- 3796-	2874- 3482-
CLINTON IRONDEQUOIT	4448- 4572-		3721- 3843-	3444- 3528-	3937- 4016-	3755- 3811-	4154- 4212-	4000- 4058-	4097- 4155-	3666- 3791-
MEDINA GRIMSBY WHIRLPOOL	4595- 4602- 4776-		3867- 3905- 4048-	3562- 3603- 3735-	4062- 4082- 4220-	3851- 3883- 4022-	4252- 4291- 4416-	4098- 4137- 4262-	4194- 4232- 4355-	3815- 3854- 3995-
QUEENSTON	4795-		4059-	3744-	4228-	4026-	4430-	4274-	4369-	4006-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4638-4778	4640-4732	3921-3993	3606-3667	4100-4230	3841-3971	4295-4425	4140-4270	4234-4362	3856-3969
TOTAL DEPTH	4939	4875	4185	3795	4256	4146	4526	4430	4450	4118
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	823 Mcf AF 1,200 psi/72 hrs. development Brimstone pool Athens field	832 Mcf AF 1,250 psi/72 hrs. Deeper pool discovery Keborts pool Vernon field	176 Mcf AF 1,250 psi/7 days development Cambridge Springs field	2,085 Mcf AF 1,025 psi/96 hrs. development Indian Springs pool Conneaut field	600 Mcf AF 1,150 psi/72 hrs. development Cussewago field	62 Mcf AF 1,125 psi/72 hrs. development Indian Springs pool Conneaut field	325 Mcf AF 990 psi/7 days development Rockdale field	750 Mcf AF 1,210 psi/2 days development Rockdale field	252 Mcf AF 1,270 psi/2 days development Rockdale field	409 Mcf AF 1,175 psi/7 days extension Cambridge Springs field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21380	Crawford 21381	Crawford 21383	Crawford 21392	Crawford 21393	Crawford 21394	Crawford 21397	Crawford 21401	Crawford 21402	Crawford 21403
NAME OF WELL	George Teudhope #1	Don Tyler #1	Mary & Wanda Kwapinski #1	Malcolm E. Olson #1	Kenneth Vatter #1	Clarence Kiter #1	Joseph Moreland #3	J. & N. Philson #1	Robert Hitchcock #2	Otto Hammermeister #1
OPERATOR	Cardinal Oil Company	Cardinal Oil Company	Wainoco Oil & Gas Company #W-89	Wainoco Oil and Gas Company	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cardinal Oil Company #56	Mitchell Energy Corporation	Ingram Enterprises Incorporated	Petro Evaluation
TOWNSHIP	Beaver	Beaver	Bloomfield	Bloomfield	Wayne	Wayne	Cussewago	Summerhill	Cussewago	Beaver
QUADRANGLE	Beaver Center	Beaver Center	Lake Canadohta	Lake Canadohta	Cochranton	Cochranton	Edinboro South	Harmonsburg	Edinboro South	Beaver Center
LATITUDE	11,380 ft. S 41°50'00"	11,200 ft. S 41°50'00"	13,800 ft. S 41°47'30"	9,000 ft. S 41°50'00"	12,000 ft. S 41°35'00"	13,200 ft. S 41°35'00"	1,020 ft. S 41°50'00"	14,150 ft. S 41°45'00"	13,950 ft. S 41°52'30"	8,200 ft. S 41°50'00"
LONGITUDE	4,900 ft. W 80°25'00"	6,620 ft. W 80°25'00"	9,700 ft. W 79°45'00"	6,400 ft. W 79°47'30"	6,450 ft. W 80°00'00"	3,300 ft. W 80°00'00"	7,420 ft. W 80°12'30"	50 ft. W 80°20'00"	3,700 ft. W 80°10'00"	2,450 ft. W 80°25'00"
DATE COMPLETED	9-26-81	10-24-81	9-6-81	9-14-81	10-15-81	10-30-81	2-4-82	9-25-81	11-15-81	11-7-81
ELEVATION	1033 GR	1039 GR	1380 GR	1550 GR	1205 GR	1280 GR	1153 GR	1138 GR	1430 GR	1000 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC: 2100-3737	FDC: 2000-3739	FDC/SNL: 502-4877 LL/GR: 471-4873 Laser: 525-4879	FDC/SNL/GR: 514-4881 LL: 50-4886 Laser. 4500-4886	GR: 4550-4994	GR/DBC: 10-5168 GR/GD: 550-5165	GR: 2200-3877	FDC/SNL: 24-4170 LL: 210-4172	FDC/GR; 250-4226	
TULLY	2021-	2024-	3079-	3094-	3226-	3312-	2209-	2431-	2526-	
ONONDAGA LIMESTONE CHERT	2187-	2190-	3326-	3330-	3439-	3528-	2407-	2596-	2734-	2160-2434
ORISKANY			3485-		3606-	3697-			2976-	
HELDERBERG KEYSER-BASS ISLANDS	2445-	2449-	3494-	3500-	3628-	3718-	2629-	2793-	2984-	2434-2678
SALINA GUELPH-LOCKPORT	2522- 3160-	2534- 3167-	3541- 4182-	3560- 4100-	3936- 4386-	3811- 4545-	2727- 3100-	2870- 3556-	3060- 3619-	2678-3017
CLINTON IRONDEQUOIT	3392- 3459-	3400- 3468-	4396- 4502-	4429- 4501-	4679- 4756-	4809- 4868-	3530- 3604-	3770- 3872-	3882- 3960-	3328-3440
MEDINA GRIMSBY WHIRLPOOL	3486- 3520- 3671-	3494- 3498- 3681-	4526- 4541- 4708-	4544- 4584- 4705-	4788- 4798- 4991-	4899- 4909- 5104-	3641- 3660- 3806-	3899- 3907- 4081-	3997- 4021- 4164-	3440-3621
QUEENSTON	3678-	3689-	4726-	4721-	5001-	5113-	3826-	4095-	4171-	3621-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3521-3604	3538-3612	4576-4713	4586-4714	4850-4954	4965-5061	3661-3762	3917-4091	4021-4167	3470-3586
TOTAL DEPTH	3758	3753	4879	4886	5062	5166	3900	4093	4229	3697
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	840 Mcf AF 975 psi/2 days development Beaver Creek pool Conneaut field	358 Mcf AF 650 psi/2 days development Beaver Creek pool Conneaut field	5,776 Mcf AF 1,285 psi/72 hrs. development Brimstone pool Athens field	4,759 Mcf AF 1,295 psi/36 hrs, development Dutch Hill pool Athens field	1,000 Mcf AF 1,250 psi/72 hrs. development Round Knob pool Kantz Corners field	1,020 Mcf AF 1,300 psi/72 hrs. development Round Knob pool Kantz Corners field	1,036 Mcf AF 820 psi/2 days development Indian Springs pool Conneaut field	745 Mcf AF 1,260 psi/552 hrs. development Indian Springs pool Conneaut field	750 Mcf AF 1,200 psi/72 hrs. development Cussewago field	500 Mcf AF 950 psi/72 hrs, development Stone Run pool Conneaut field

COUNTY Permit Number	Crawford 21405	Crawford 21406	Crawford 21407	Crawford 21408	Crawford 21411	Crawford 21412	Crawford 21413	Crawford 21414	Crawford 21416	Crawford 21422
NAME OF WELL	Ralph E. Bangs #1	George M. Stewart #1	Jim Hotchkiss #1	Greenlee-Ingols #3	John R. Brown #1	M. Lanny Bunting #4	Rose Lydic #1	R. W. Nichols #1	Lawrence Berkebile #1	Paul Medrick #2
OPERATOR	Wainoco Oil & Gas Company #W-122	Wainoco Oil & Gas Company #W-121	Cardinal Oil Company #55	Cardinal Oil Company #37	Cardinal Oil Company #62	Cardinal Oil Company #64	Meridian Exploration Corporation #603	Meridian Exploration #600	G. P. Oil and Gas, Incorporated	G. P. Oil and Gas, Incorporated
TOWNSHIP	Rome	Rome	Spring	Spring	Cussewago	Spring	Rockdale	Rockdale	Beaver	Beaver
QUADRANGLE	Spartansburg	Titusville North	Conneautville	Conneautville	Edinboro South	Conneautville	Millers Station	Miller's Station	Beaver Center	Beaver Center
LATITUDE	14,550 ft. S 41°47'30"	8,050 ft. S 41°45'00"	9,020 ft. S 41°50'00"	11,760 ft. S 41°50'00"	1,440 ft. S 41°50'00"	1,960 ft. S 41°50'00"	11,300 ft. S 41°52'30"	3,800 ft. S 41°47'30"	2,900 ft. S 41°50'00"	3,700 ft. S 41°50'00"
LONGITUDE	10,100 ft. W 79°40'00"	2,900 ft. W 79°40'00"	6,960 ft. W 80°15'00"	10,740 ft. W 80°15'00"	4,640 ft. W 80°10'00"	6,220 ft. W 80°17'30"	10,700 ft. W 79°55'00"	3,400 ft. W 79°55'00"	6,500 ft. W 80°25'00"	2,025 ft. W 80°27'30"
DATE COMPLETED	10-15-81	10-3-81	11-28-81	1-18-81	9-21-81	11-22-81	10-31-81	11-15-81	5-28-82	11-5-81
ELEVATION	1610 GR	1650 GR	1325 GR	1267 GR	1420 GR	1151 GR	1530 GR	1465 GR	1005 GR	1002 GR
LOGS RECEIVED AND LOGGED INTERVALS	LL: 500-5303	FOC/SNL: 536-5466 LL/GR: 0-5463 Laser: 5276-5292	FOC/SNP: 1900-4086	FOC/GR: 2400-4054	FOC/SNL: 1819-3932	FOC/GR: 2200-3064	FOC/GR: 0-4551 OLL: 3830-4539 POC: 4240-4508	FOC/GR. 0-4665 T: 441-4670 IL: 2650-4656		
TULLY	3482-	3796-	2438-	2418-	2513-	2212-	2855-	2950-		
ONONDAGA LIMESTONE CHERT	3726-	3848-	2622-	2602-	2716-	2400-	3085-	3126-	2144-3286	2118-
ORISKANY		3995-			2943-			3359-		2370-
HELDERBERG KEYSER-BASS ISLANDS	3883-	4002-	2824-	2800-	2954-	2620-	3276-	3374-		
SALINA GUELPH-LOCKPORT	3946- 4574-	4080- 4714-	2892- 3523-	2866- 3500-	3022- 3604-	2690-	3338- 3918-	3421- 4073-	2740-2970 3025-3286	2711- 3024-
CLINTON IRONDEQUOIT	4856- 4915-	5000- 5066-	3758- 3830-	3734- 3806-			4179- 4247-	4232- 4354-	3362-3388	3348-
MEDINA GRIMSBY WHIRLPOOL	4964- 5004- 5129-	5110- 5168- 5278-	3868- 3882- 4036-	3844- 3888- 4013-			4285- 4326- 4446-	4379- 4387- 4563-	3425- 3570-3578	3378- 3552-
QUEENSTON	5146-	5290-	4047-	4024-			4457-	4579-	3578-3650	3563-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4984-5059	5125-5258	3908-3997	3896-3955	4074-4161	3646-3714	4335-4382	4445-4498	3456-3517	3402-3560
TOTAL DEPTH	5308	5468	4093	4085	4272	3836	4555	4678	3650	3610
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,302 Mcf AF 1.260 psi/36 hrs. development Rome pool Athens field	1,311 Mcf AF 1,265 psi/72 hrs. extension Vrooman pool Church Run field	373 Mcf AF 1,025 psi/48 hrs. development Indian Springs pool Conneaut field	445 Mcf AF 1,075 psi/48 hrs. development Indian Springs pool Conneaut field	2,630 Mcf AF 950 psi/2 days development Cussewago field	106 Mcf AF 1,100 psi/48 hrs. development Lundys Lane pool Conneaut field	168 Mcf AF 1,280 psi/7 days development Rockdale field	360 Mcf AF 1,200 psi/168 hrs. development Brown Hill pool Eaton Corners field	750 Mcf AF 1,150 psi/48 hrs. development Stone Run pool Conneaut field	800 Mcf AF 1,050 psi/48 hrs. development Mud Run pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21425	Crawford 21429	Crawford 21430	Crawford 21431	Crawford 21432	Crawford 21433	Crawford 21434	Crawford 21435	Crawford 21436	Crawford 21439
NAME OF WELL	Martin Anderhalt #1	Jacob H. Leffler #1	Mildred E. Remek #1	Arlyn R. Rubash #1	Charles M. Bruckner #1	Jewell Allen #1	Jewell Allen #2	Eliza W. Chitester #1	Richard B. Froggatt #2	Robert L. Pegan #1
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cardinal Oil Company #63	Cabot Oil & Gas Corporation	Wainoco Oil & Gas Company #W-124	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Wayne	Wayne	Cussewago	Wayne	Rome	Wayne	Wayne	Wayne	Wayne	Wayne
QUADRANGLE	Cochranton	Sugar Lake	Edinboro South	Sugar Lake	Spartansburg	Cochranton	Cochranton	Sugar Lake	Sugar Lake	Cochranton
LATITUDE	10,600 ft. S 41°35'00"	11,200 ft. S 41°32'30"	500 ft. S 41°50'00"	10,150 ft. S 41°32'30"	9,100 ft. S 41°47'30"	8,400 ft. S 41°32'30"	5,700 ft. S 41°32'30"	5,600 ft. S 41°32'30"	14,500 ft. S 41°32'30"	7,600 ft. S 41°32'30"
LONGITUDE	3,800 ft. W 80°00'00	6,800 ft. W 79°57'30"	3,800 ft. W 80°12'30"	3,700 ft. W 79°57'30"	2,100 ft. W 79°40'00"	7,500 ft. W 80°00'00"	7,350 ft. W 80°00'00"	3,600 ft. W 79°57'30"	9,250 ft. W 79°57'30"	3,800 ft. W 80°00'00"
DATE COMPLETED	11-11-81	10-24-81	11-21-81	10-6-81	9-27-81	10-22-81	10-31-81	1-19-82	10-20-81	10-11-81
ELEVATION	1395 GR	1390 GR	1235 GR	1590 GR	1630 GR	1255 GR	1105 GR	1380 GR	1405 GR	1420 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/GD: 580-5240 GR/DBC: 0-5245	GR/DBC: 0-5450 GR/GD: 550-5447	FDC/GR: 2250-3994	GR/DBC: 0-5648	FDC/SNL: 525-5280 LL/GR: 0-5277 Laser: 4930-5120	GR: 4840-5204	GR/GD: 550-5075 GR/DBC. 10-5078	FDC/GR: 0-5411 GR/GD: 550-5406		GR/CCL: 5000-5318
TULLY	3393-	3530-	2308-	3737-	3474-	3319-	3187-	3502-	3376-	3519-
ONONDAGA LIMESTONE CHERT	3608-	3756-	2506-	3966-	3722-	3538-	3400-	3728-	3800-	3733-
ORISKANY	3779-	3902-	2738-	4110-	3884-	3685-	3564-	3880-	3950-	3895-
HELDERBERG KEYSER-BASS ISLANDS	3800-	3924- 3960-	2755-	4133- 4170-	3900-	3709-	3580-	3905-	3975-	3920-
SALINA GUELPH-LOCKPORT	3908- 4597-	4033- 4800-	2814- 3390-	4241- 5020-	3949- 4529-	4037- 4493-	3689- 4433-	4006- 4760-	4300- 4754-	4232- 4676-
CLINTON IRONDEQUOIT	4880- 4942-	5067- 5137-	3656- 3730-	5290- 5353-	4768- 4886-	4862- 4924-	4690- 4760-	4968- 5102-	5108- 5220-	5026- 5091-
MEDINA GRIMSBY WHIRLPOOL	4973- 4984- 5176-	5190- 5230- 5378-	3771- 3814- 3932-	5407- 5456- 5590-	4909- 4915- 5094-	4957- 4966- 5160-	4792- 4803- 4996-	5134- 5144- 5333-	5232- 5404-	5122- 5132- 5328-
QUEENSTON	5186-	5385-	3938-	5600-	5114-	5172-	5004-	5343-	5424-	5338-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5036-5128	5232-5334	3816-3890	5460-5526	4971-5107	4991-5103	4866-4951	5203-5262	5278-5368	5192-5280
TOTAL DEPTH	5247	5456	4015	5655	5281	5273	5084	5411	5484	5392
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,200 Mcf AF 1.350 psi/72 hrs. extension Round Knob pool Kantz Corners field	1,250 Mcf AF 1,250 psi/72 hrs. development Cochranton field	Not reported 370 psi/2 days development Indian Springs pool Conneaut field	1,050 Mcf AF 1,250 psi/72 hrs. development Cochranton field	1,400 Mcf AF 1,250 psi/72 hrs. extension Hatchtown pool Church Run field	700 Mcf AF 1,350 psi/72 hrs. development Cochranton field	1,391 Mcf AF 1,300 psi/72 hrs. development Cochranton field	800 Mcf AF 1.325 psi/72 hrs. development Deckard pool Cochranton field	1,800 Mcf AF 1,250 psi/72 hrs. development Cochranton field	1,400 Mcf AF 1.350 psi/72 hrs. development Cochranton field

COUNTY Permit Number	Crawford 21441	Crawford 21444	Crawford 21445	Crawford 21446	Crawford 21448	Crawford 21449	Crawford 21451	Crawford 21452	Crawford 21453	Crawford 21456
NAME OF WELL	George Simonetta #1	Dearl Hines #1	Albert H. Ebitz #1	F. A. McKuhn #1	O. L. & P. G. Stutzman Unit #1	Andrew Zoltak #1	Lawrence J. Cotterman #1	Edward L. Hoadley #1	Robert E. Steider #1	F. S. Urbanick #1
OPERATOR	Cabot Oil & Gas Corporation	Wainoco Oil & Gas Company #W-130	Wainoco Oil & Gas Company #W-129	Wainoco Oil & Gas Company #W-128	Mitchell Energy Corporation	Cardinal Oil Company #71	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mitchell Energy Corporation
TOWNSHIP	Greenwood	Rome	Rome	Rome	Cussewago	Cussewago	Wayne	Fairfield	Wayne	Conneaut
QUADRANGLE	Hadley	Titusville North	Spartansburg	Spartansburg	Conneautville	Edinboro South	New Lebanon	Geneva	Sugar Lake	Linesville
LATITUDE	3,200 ft. S 41°30'00"	600 ft. S 41°45'00"	10,300 ft. S 41°47'30"	10,200 ft. S 41°47'30"	7,600 ft. S 41°50'00"	14,740 ft. S 41°52'30"	3,500 ft. S 41°30'00"	10,900 ft. S 41°32'30"	7,850 ft. S 41°32'30"	9,200 ft. S 41°42'30"
LONGITUDE	700 ft. W 80°10'00"	3,750 ft. W 79°40'00"	7,800 ft. W 79°40'00"	2,750 ft. W 79°42'30"	2,000 ft. W 80°15'00"	9,800 ft. W 80°12'30"	2,750 ft. W 80°00'00"	3,350 ft. W 80°07'30"	8,200 ft. W 79°57'30"	5,800 ft. W 80°20'00"
DATE COMPLETED	11-3-81	12-18-81	10-11-81	10-17-81	10-17-81	11-2-81	11-4-81	11-11-81	11-15-81	11-18-81
ELEVATION	1400 GR	1695 GR	1585 GR	1405 GR	1300 GR	1136 GR	1340 GR	1330 GR	1450 GR	1185 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-5300 GO: 540-5296	FDC/SNL: 532-5400 LL/GR: 0-5423 Laser: 5090-5300	FDC/SNL: 21-5280 LL/GR: 467-5276	FDC/SNL: 33-4988 LL/GR: 495-4985 Laser: 4666-4842	GR/FDC/SNL: 20-4056 LL: 310-4053 Laser: 2788-3990	FDC/SNL: 2000-3869	GR/GO: 546-5406 GR/DBC: 10-5409	GR: 4700-5144	GR/CCL: 5030-5324	FDC/SNL: 26-4178 LL/GR: 300-4175 SON: 298-4168
TULLY	3391-	3604-	3415-	3172-	2379-	2188-	3515-	3327-		2434-
ONONDAGA LIMESTONE CHERT	3554-	3850-	3661-	3426-	2564-	2384-	3734-	3511-		2582-
ORISKANY			3818-	3592-		2608-	3882-	3686-		2787-
HELDERBERG KEYSER-BASS ISLANDS	3730-	4006-	3833-	3607-	2769-	2616-	3904- 3940-	3705-		2793-
SALINA GUELPH-LOCKPORT	3847- 4642-	4075- 4700-	3879- 4496-	3661- 4279-	2839- 3460-	2686- 3284-	4010- 4770-	4003- 4449-		2866- 3564-
CLINTON IRONDEQUOIT	4909- 4969-	4978- 5044-	4710- 4832-	4520- 4616-	3722- 3774-	3518- 3592-	5030- 5094-	4820- 4879-	5087- 5157-	3780- 3884-
MEDINA GRIMSBY WHIRLPOOL	5004- 5019- 5213-	5095- 5133- 5255-	4855- 4862- 5042-	4640- 4647- 4827-	3810- 3830- 3976-	3628- 3675- 3798-	5147- 5204- 5350-	4912- 4923- 5113-	5210- 5255- 5389-	3912- 3917- 4101-
QUEENSTON	5228-	5270-	5060-	4840-	3987-	3804-	5356-	5130-	5399-	4109-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5069-5184	5101-5232	4909-5046	4698-4832	3814-3985	3650-3755	5170-5305	4983-5068	5216-5304	3946-4108
TOTAL DEPTH	5319	5428	5282	4990	4061	3862	5415	5222	5413	4188
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	600 Mcf AF 1,375 psi/72 hrs. development Kantz Corners field	1,122 Mcf AF 1,285 psi/72 hrs. development Rome pool Athens field	2,058 Mcf AF 1,285 psi/72 hrs. extension Rome pool Athens field	959 Mcf AF 1,235 psi/72 hrs. development Rome pool Athens field	740 Mcf AF 1,150 psi/111 hrs. development Indian Springs pool Conneaut field	388 Mcf AF 1,000 psi/2 days development Pageville pool Conneaut field	3,391 Mcf AF 1,350 psi/72 hrs. development Cochranton field	1,000 Mcf AF 1,350 psi/72 hrs. development Kantz Corners field	1,250 Mcf AF 1,250 psi/72 hrs. development Cochranton field	607 Mcf AF 1,190 psi/208 hrs. development Blood pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21457	Crawford 21459	Crawford 21460	Crawford 21461	Crawford 21462	Crawford 21463	Crawford 21464	Crawford 21465	Crawford 21466	Crawford 21467
NAME OF WELL	Charles Turik #1	W. Glenn Hoffman #1	Robert A. Klasen #1	Robert W. Wright #1	Russell #1	A. T. Boban, Sr. #1	W. J. Hyde, Sr. #1	Helen Webb #5	Amos K. Flint #2	Robert A. Dickson #2
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Flanigan Brothers	Meridian Oil and Gas Enterprises	Meridian Oil and Gas Enterprises	Meridian Oil and Gas Enterprises	Meridian Oil and Gas Enterprises	Cabot Oil & Gas Corporation
TOWNSHIP	Wayne	Wayne	Wayne	Wayne	Cussewago	Beaver	Beaver	Summerhill	Spring	Wayne
QUADRANGLE	Sugar Lake	Sugar Lake	Cochranton	Cochranton	Edinboro South	Beaver Center	Beaver Center	Harmonsburg	Beaver Center	Cochranton
LATITUDE	1,700 ft. S 41°32'30"	3,950 ft. S 41°32'30"	13,100 ft. S 41°32'30"	400 ft. S 41°32'30"	7,150 ft. S 41°47'30"	6,760 ft S 41°50'00"	2,920 ft. S 41°50'00"	5,300 ft. S 41°45'00"	10,380 ft. S 41°52'30"	6,900 ft. S 41°32'30"
LONGITUDE	2,500 ft. W 79°57'30"	6,750 ft. W 79°57'30"	9,500 ft. W 80°00'00"	2,250 ft. W 80°00'00"	10,150 ft. W 80°12'30"	9,060 ft. W 80°22'30"	9,600 ft. W 80°22'30"	6,700 ft. W 80°17'30"	5,400 ft. W 80°22'30"	9,350 ft. W 80°00'00"
DATE COMPLETED	12-2-81	12-6-81	12-19-81	11-8-81	10-30-81	12-1-81	12-6-81	12-8-81	12-15-81	11-9-81
ELEVATION	1570 GR	1265 GR	1070 GR	1185 GR	1110 GR	1011 GR	938 GR	1337 GR	975 GR	1240 GR
LOGS RECEIVED AND LOGGED INTERVALS	CCL/PR/GR: 5230-5563	GR/GO: 550-5270 DBC/GR: 0-5275	GR: 4666-5094	GR/GO: 575-5110 GR/DBC: 0-5110	GR: 3700-3978	CNL/FDC/GR:150-3685 GO: 2100-3682 SON: 3400-3687	CNL/FDC/GR:200-3576 GO: 2000-3574	FDC/GR: 150-4266 R: 4050-4258 GO: 4000-4264		GR/GO: 540-5190 GR/DBC: 0-5193
TULLY		3355-		3233-						3312-
ONONDAGA LIMESTONE CHERT		3580-		3450-		2188-	2093-	2766-	2134-	3526-
ORISKANY		3736-		3615-		Bois Blanc 2368-			2430-	3688-
HELDERBERG KEYSER-BASS ISLANDS		3755-		3640-		2471-	2348-	2955-	2440-	3712-
SALINA GUELPH-LOCKPORT		3861- 4604-		3746- 4422-		2509-	2424- 3026-	3716-	2750- 2940-	3818- 4550-
CLINTON IRONDEQUOIT	5245- 5316-	4860- 4931-	4742- 4800-	4742- 4804-	3756-	3356- 3424-	3265- 3337-	3963- 4022-	3280-	4826- 4886-
MEDINA GRIMSBY WHIRLPOOL	5370- 5408- 5546-	4982- 5034- 5164-	4849- 4895- 5038-	4850- 4910- 5040-	3794- 3838- 3967-	3460- 3508- 3636-	3370- 3428-	4050- 4056- 4233-	3334- 3540-	4934- 4980- 5122-
QUEENSTON	5556-	5173-	5046-	5050-	3973-	3643-		4239-	3542-	5132-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5391-5509	5037-5118	4898-4993	4902-4995	3838-3917	3525-3534	3429-3456	4138-4147	3392-3434	4953-5065
TOTAL DEPTH	5584	5306	5100	5120	3990	3687	3567	4268	3567	5225
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,300 Mcf AF 1,250 psi/72 hrs. extension Deckard pool Cochranton field	1,200 Mcf AF 1,250 psi/72 hrs. development Cochranton field	1,950 Mcf AF 1,250 psi/72 hrs. development Cochranton field	1,215 Mcf AF 1,300 psi/72 hrs. extension Cochranton field	200 Mcf Nat. 550 Mcf AF 1,120 psi/2 days development Kastle pool Conneaut field	5,000 Mcf Nat. 5,500 Mcf AF 1,050 psi/72 hrs. development Stone Run pool Conneaut field	2,000 Mcf AF 1,175 psi/72 hrs. extension Stone Run pool Conneaut field	500 Mcf AF 600 psi/72 hrs. development Indian Springs pool Conneaut field	2,000 Mcf AF 1,050 psi/72 hrs. development Pennside pool Conneaut field	5,180 Mcf AF 1,375 psi/72 hrs. development Cochranton field

COUNTY Permit Number	Crawford 21468	Crawford 21469	Crawford 21471	Crawford 21473	Crawford 21481	Crawford 21482	Crawford 21483	Crawford 21485	Crawford 21487	Crawford 21488
NAME OF WELL	John Hoogstad #1	Harry A. McConnell #1	John E. Rynd #3	J. Wenzel #1	Venango Valley Inn & Golf Course #1	Robert R. Blakeslee #1	Matilda Boyd #1	F. Nelson & J. Nelson Unit #1	Richard Ertman #2	John Gribus #1
OPERATOR	Cardinal Oil Company #70	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Berea Oil and Gas Corporation	Meridian Exploration #595	Meridian Exploration Corporation #598	Cardinal Oil Company	Mitchell Energy Corporation	Cardinal Oil Company #77	Cardinal Oil Company #78
TOWNSHIP	Spring	Wayne	Wayne	Woodcock	Venango	Rockdale	Beaver	Summerhill	Spring	Spring
QUADRANGLE	Conneautville	Cochranton	New Lebanon	Blooming Valley	Cambridge Springs	Millers Station	Beaver Center	Harmonsburg	Conneautville	Conneautville
LATITUDE	6,980 ft. S 41°50'00"	10,600 ft. S 41°32'30"	2,850 ft. S 41°30'00"	7,920 ft. S 41°45'00"	8,20 ft. S 41°47'30"	4,500 ft. S 41°50'00"	12,200 ft. S 41°50'00"	11,200 ft. S 41°45'00"	13,660 ft. S 41°50'00"	7,320 ft. S 41°50'00"
LONGITUDE	5,140 ft. W 80°20'00"	8,150 ft. W 80°00'00"	4,600 ft. W 80°00'00"	4,680 ft. W 80°05'00"	9,800 ft. W 80°05'00"	2,150 ft. W 79°55'00"	520 ft. W 80°25'00"	7,800 ft. W 80°15'00"	7,340 ft. W 80°15'00"	4,360 ft. W 80°17'30"
DATE COMPLETED	11-8-81	11-18-81	11-6-81	1-21-82	11-18-81	12-10-81	1-16-82	11-4-81	1-29-82	12-12-82
ELEVATION	1152 GR	1250 GR	1185 GR	1435 GR	1160 GR	1570 GR	1013 GR	1352 GR	1225 GR	1146 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2200-3938	GR: 4850-5225 FDC/GR: 21-5294 OLL: 543-5292	GR/DBC: 0-5235 GR/GO: 600-5231	PDC: 4250-4658	FDC/GR: 0-4222 T: 438-4232 PCL: 3963-4015	FDC/GR: 0-4655 OLL: 3502-4660 T: 3607-4660 PDC: 4300-4612		FDC/SNL/GR: 0-4412 LL: 300-4410 Laser: 2820-3081	GR: 2350-4022	PCL: 2150-3869
TULLY	2234-	3367-	3354-		2464-	2964-	12-	2660-	2388-	2222-
ONONDAGA LIMESTONE CHERT	2408-	3580-	3570-		2664-	3190-	180-	2847-	2570-	2405-
ORISKANY		3738-	3720-				2412-			
HELDERBERG KEYSER-BASS ISLANDS	2628-	3760-	3739- 3768-		2871-	3374-		3023-	2767-	2610-
SALINA GUELPH-LOCKPORT	2708- 3340-	3923- 4572-	3851- 4516-		2928- 3586-	3430- 4040-		3105- 3786-	2860- 3470-	2681- 3300-
CLINTON IRONDEQUOIT	3570- 3640-	4846- 4957-	4870- 4938-	4336-	3804- 3891-	4280- 4366-	3364-	4043- 4098-	3712- 3775-	3551- 3608-
MEDINA GRIMSBY WHIRLPOOL	3673- 3718- 3846-	4989- 5000- 5194-	4994- 5045- 5181-	4363- 4407- 4550-	3916- 3960- 4102-	4409- 4434- 4569-	3478-	4121- 4132- 4313-	3812- 3851- 3987-	3644- 3707- 3817-
QUEENSTON	3854-	5204-	5190-	4561-	4109-	4583-	3676-	4318-	3993-	3825-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3696-3743	5059-5144	5048-5144	4414-4560	3963-4015	4436-4465	3524-3607	4142-4316	3855-3939	3669-3756
TOTAL DEPTH	3922	5290	5238	4700	4235	4678	3742	4415	4052	3900
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,057 Mcf AF 1,050 psi/60 hrs. development Lundys Lane pool Conneaut field	1,426 Mcf AF 1,150 psi/72 hrs. development Cochranton field	7,006 Mcf AF 1,350 psi/72 hrs. development Cochranton field	600 Mcf AF 1,200 psi/72 hrs. extension Woodcock pool Richmond field	279 Mcf AF 1,090 psi/7 days extension Conneaut field	123 Mcf AF 1,175 psi/7 days extension Rockdale field	231 Mcf AF 1,100 psi/3 days development Indian Springs pool Conneaut field	688 Mcf AF 1,175 psi/90 hrs. development Indian Springs pool Conneaut field	260 Mcf AF 1,100 psi/48 hrs. development Indian Springs pool Conneaut field	265 Mcf AF 1,060 psi/48 hrs development Indian Springs pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21489	Crawford 21494	Crawford 21495	Crawford 21497	Crawford 21498	Crawford 21500	Crawford 21501	Crawford 21502	Crawford 21503	Crawford 21506
NAME OF WELL	Don Tyler #3	Elizabeth V. Piechota #1	Peter Wagler #1	Harmony Forged #1	O. & O. O'Donnell #2	M. E. Griffith #1	S. Zahniser #1	L. DeFrancesco #1	Michael A. LaMalfa #1	Raymond Causa #1
OPERATOR	Cardinal Oil Company	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Moody and Associates, Inc.	Mitchell Energy Corporation	Berea Oil & Gas Corporation	Berea Oil & Gas Corporation	Berea Oil & Gas Corporation	James Drilling Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Beaver	Fairfield	Fairfield	Summit	Summerhill	Cambridge	Woodcock	Richmond	Spring	Wayne
QUADRANGLE	Beaver Center	Cochranton	New Lebanon	Harmonsburg	Harmonsburg	Cambridge Springs	Blooming Valley	Blooming Valley	Conneautville	Sugar Lake
LATITUDE	12,500 ft. S 41°50'00"	10,400 ft. S 41°32'30"	3,900 ft. S 41°30'00"	1,700 ft. S 41°40'00"	13,550 ft. S 41°45'00"	10,600 ft. S 41°47'30"	10,500 ft. S 41°42'30"	2,410 ft. S 41°42'30"	8,180 ft. S 41°47'30"	11,000 ft. S 41°35'00"
LONGITUDE	5,780 ft. W 80°25'00"	7,400 ft. W 80°02'30"	7,600 ft. W 80°05'00"	10,600 ft. W 80°17'30"	7,950 ft. W 80°15'00"	10,400 ft. W 80°02'30"	7,180 ft. W 80°02'30"	300 ft. W 80°00'00"	10,520 ft. W 80°17'30"	7,900 ft. W 79°57'30"
DATE COMPLETED	10-31-81	11-20-81	2-1-82	11-4-81	11-11-81	1-4-82	2-11-82	2-1-82	11-28-81	2-13-82
ELEVATION	1000 GR	1320 GR	1460 GR	1100 GR	1377 GR	1393 GR	1335 GR	1295 GR	1242 GR	1400 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC: 2000-3771	GR 4850-5240			FDC: 0-3194 GR/IL: 0-3194	FDC/GR: 0-4528 LL: 600-4510 Tracer: 4000-4374 POC: 3991-4523		COL: 0-4774 LL: 510-4774	FDC/GR: 200-4066 GO: 3800-4066 R: 3800-4059	GR/CCL: 4890-5284
TULLY	2098-		3510-	2482-	2704-	2754-	2876-	2956-		
ONONDAGA LIMESTONE CHERT	2212-		3704-	2643-	2872-	2958-	3076-	3168-	2592-	
ORISKANY			3876-	3180-	3073-		3210-	3353-		
HELDERBERG KEYSER-BASS ISLANDS	2468-		3894-		3082-	3154-	3262-	3360-	2756-	
SALINA GUELPH-LOCKPORT	2549- 3190-		4208-4690 4690-5048	3835-		3222- 3891-	3552- 4006-	3402- 4082-	2865- 3519-	
CLINTON IRONDEQUOIT	3421- 3440-	4904- 4966-	5048- 5154-5168			4109- 4226-	4330- 4390-	4283- 4423-	3777- 3828-	4894- 4988-
MEDINA GRIMSBY WHIRLPOOL	3516- 3570- 3703-	5024- 5058- 5202-	5168- 5355-	4020- 4164-		4250- 4290- 4434-	4472- 4600-	4449- 4462- 4640-	3855- 3861- 4040-	5019- 5028- 5218-
QUEENSTON	3710-	5216-	5364-	4178-		4446-	4620-	4655-	4046-	5229-
PRODUCING FORMATION	Medina	Medina	Medina	Medina		Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3563-3633	5074-5162	5180-5317	4047-4174		4291-4444	4492-4607	4508-4642	3930-3953	5087-5184
TOTAL DEPTH	3786	5242	5388	4253	3194	4530	4785	4776	4068	5330
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Bass Island	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	104 Mcf AF 950 psi/2 days development Beaver Creek pool Conneaut field	2,200 Mcf AF 1,375 psi/72 hrs. development Kantz Corners field	2,000 Mcf AF 1,325 psi/72 hrs. development Kantz Corners field	850 Mcf AF 1,300 psi/5 days extension Carlson pool Conneaut field	Dry and abandoned development Indian Springs pool Conneaut field	100 Mcf AF 350 psi/72 hrs. extension Cambridge pool Cambridge Springs field	200 Mcf AF 750 psi/72 hrs. New field discovery Blooming Valley field	100 Mcf AF 400 psi/72 hrs. extension Delamater pool Randolph field	1,000 Mcf AF 800 psi/72 hrs. development Indian Springs pool Conneaut field	880 Mcf AF 1,350 psi/72 hrs. development Deckard pool Cochranton field

COUNTY Permit Number	Crawford 21507	Crawford 21508	Crawford 21510	Crawford 21511	Crawford 21512	Crawford 21513	Crawford 21516	Crawford 21517	Crawford 21518	Crawford 21520
NAME OF WELL	Lester J. Wright #1	Richard Younkins #1	Mildred E. McMillin #1	Joseph Moreland #4	Joseph Moreland #5	Dave & Melinda Henderson #1	George Linz #1	Orthodox #8	Earl Allen #1	Dale Risley #2
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cardinal Oil Company #79	Cardinal Oil Company #80	Cardinal Oil Company #82	Cardinal Oil Company #84	Cardinal Oil Company	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Wayne	Wayne	Fairfield	Cussewago	Cussewago	Spring	Spring	Spring	Wayne	East Fairfield
QUADRANGLE	New Lebanon	Cochranton	New Lebanon	Edinboro South	Edinboro South	Conneautville	Conneautville	Beaver Center	Sugar Lake	Cochranton
LATITUDE	3,200 ft. S 41°30'00"	2,800 ft. S 41°32'30"	4,350 ft. S 41°30'00"	2,440 ft. S 41°50'00"	640 ft. S 41°50'00"	10,860 ft. S 41°52'30"	13,500 ft. S 41°52'30"	15,000 ft. S 41°52'30"	900 ft. S 41°32'30"	3,100 ft. S 41°35'00"
LONGITUDE	800 ft. W 80°00'00"	7,800 ft. W 80°00'00"	11,100 ft. W 80°02'30"	6,960 ft. W 80°12'30"	5,140 ft. W 80°12'30"	2,840 ft. W 80°17'30"	10,520 ft. W 80°15'00"	4,660 ft. W 80°22'30"	8,600 ft. W 79°57'30"	9,600 ft. W 80°02'30"
DATE COMPLETED	12-17-81	1-11-82	11-28-81	2-5-82	2-19-82	12-6-81	12-19-81	11-16-81	2-23-82	1-12-81
ELEVATION	1420 GR	1360 GR	1455 GR	1152 GR	1225 GR	1125 GR	1150 GR	929 GR	1250 GR	1310 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 7-5532 GR/GD: 550-5524	GR/DBC: 0-5308	DBC/GR: 0-3786 GR/IL: 539-3789 GR/STS: 460-3794	GR: 2200-3875	GR: 2200-3943	GR: 2050-3758	GR: 2200-3830		FDC/GR: 534-5200 LL: 534-5196	GR/PCL: 4550-4932
TULLY	3612-	3410-	3590-	2216-	2273-	2090-	2210-	1922-	3328-	3095-
ONONDAGA LIMESTONE CHERT	3832-	3622-		2413-	2472-	2288-	2406-	2098-	3552-	3315-
ORISKANY	3980-	3788-			2692-		2602-	2310-	3713-	3492-
HELDERBERG KEYSER-BASS ISLANDS	4000- 4050-	3809-		2622-	2705-	2530-	2620-	2358-	3732-	3507-
SALINA GUELPH-LOCKPORT	4111- 4858-	3910- 4592-		2700- 3284-	2779- 3346-	2615- 3200-	2770- 3270-	2428- 2986-	3838- 4650-	3842- 4282-
CLINTON IRONDEQUOIT	5138- 5220-	4920- 4980-		3552- 3624-	3610- 3686-	3439- 3509-	3512- 3581-	3254-	4780- 4894-	4636- 4691-
MEDINA GRIMSBY WHIRLPOOL	5275- 5330- 5460-	5027- 5074- 5214-		3670- 3711- 3826-	3732- 3770- 3892-	3552- 3577- 3710-	3615- 3631- 3783-	3350-	4925- 4936- 5131-	4721- 4730- 4920-
QUEENSTON	5467-	5226-		3836-	3900-	3718-	3792-	3536-	5137-	4936-
PRODUCING FORMATION	Medina	Medina	Marcellus Shale	Medina	Medina	Medina	Medina		Medina	Medina
PRODUCING INTERVAL	5332-5403	5041-5172	3100-3690	3683-3747	3745-3858	3580-3648	3631-3739	3398-3482	4995-5091	4770-4879
TOTAL DEPTH	5533	5310	3760	3919	3984	3790	3888	3611	5202	5042
DEEPEST FORMATION REACHED	Queenston	Queenston	Hamilton	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,426 Mcf AF 1,250 psi/72 hrs. extension Cochranton field	1,600 Mcf AF 1,250 psi/72 hrs. development Round Knob pool Kantz Corners field	75 Mcf AF 910 psi/72 hrs. development Kantz Corners field	55 Mcf AF 850 psi/2 days development Indian Springs pool Conneaut field	279 Mcf AF 1,060 psi/2 days development Indian Springs pool Conneaut field	1,023 Mcf AF 1,100 psi/48 hrs. development Indian Springs pool Conneaut field	497 Mcf AF 1,100 psi/72 hrs. development Indian Springs pool Conneaut field	697 Mcf AF 850 psi/2 days development Lundys Lane pool Conneaut field	1,000 Mcf AF 1,300 psi/72 hrs. development Deckard pool Cochranton field	1,400 Mcf AF 1,200 psi/72 hrs development Shaws Corners pool Kantz Corners field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21526	Crawford 21527	Crawford 21528	Crawford 21529	Crawford 21530	Crawford 21532	Crawford 21534	Crawford 21543	Crawford 21547	Crawford 21548
NAME OF WELL	John Kalinowski #1	Dale L. Risley #1	Dale W. Gum #2	Robert A. Dickson #3	Henry & Katherine Rippert #4	Albert Deeter #1	Richard Schnarrs #1	W. L. Hartley #1	Mason H. & Marion B. Bixler #1	Austin F. Conley #2
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Northwest Natural Gas Company	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mitchell Energy Corporation	Northwest Natural Gas Company	Northwest Natural Gas Company
TOWNSHIP	Fairfield	East Mead	Wayne	East Fairfield	Spring	Wayne	Union	Summerhill	Spring	Spring
QUADRANGLE	Cochranton	Cochranton	Cochranton	Cochranton	Conneautville	Sugar Lake	Geneva	Harmonsburg	Conneautville	Conneautville
LATITUDE	11,000 ft. S 41°32'30"	13,700 ft. S 41°37'30"	7,900 ft. S 41°32'30"	2,400 ft. S 41°32'30"	300 ft. S 41°50'00"	12,750 ft. S 41°35'00"	8,450 ft. S 41°37'30"	11,200 ft. S 41°45'00"	11,300 ft. S 41°52'30"	50 ft. S 41°50'00"
LONGITUDE	8,600 ft. W 80°05'00"	7,900 ft. W 80°02'30"	1,050 ft. W 80°00'00"	3,300 ft. W 80°02'30"	8,900 ft. W 80°20'00"	10,500 ft. W 79°57'30"	1,300 ft. W 80°10'00"	8,050 ft. W 80°20'00"	4,100 ft. W 80°20'00"	7,100 ft. W 80°20'00"
DATE COMPLETED	2-15-82	1-25-82	2-11-81	2-16-81	12-15-81	3-17-82	2-5-82	3-24-82	12-21-81	12-21-81
ELEVATION	1330 GR	1360 GR	1475 GR	1335 GR	1135 GR	1385 GR	1340 GR	1075 GR	1130 GR	1145 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/GR: 0-5043	FDC/GR: 11-5452 DLL: 537-5445	GR/CCL: 4800-5196	GR: 3400-3747	FDC/GR: 516-5312 LL: 516-5312	FDC/GR: 0-4889 GR/GD: 0-4884	FDC/SNL: 0-4092 LL: 462-4089	GR: 2100-3723	
TULLY	3345-	3186-	3570-		2124-	3429-	2986-	2331-	2118-	2128-
ONONDAGA LIMESTONE CHERT	3536-	3384-	3793-		2306-	3648-	3168-	2489-	2302-	2311- 2574
ORISKANY	3713-	3570-	3951-			3813-	3356-	2682-		
HELDERBERG KEYSER-BASS ISLANDS	3731-4031	3589-	3976- 4030-		2572-	3823-	3363-	2696-	2556-	2574-2642
SALINA GUELPH-LOCKPORT	4031- 4491-	3676- 4392-	4083- 4832-		2644- 3210-	3932- 4650-	3450-	2772- 3456-	2640- 3178-	2642- 3206-3442
CLINTON IRONDEQUOIT	4851-4903 4950-4960	4662- 4722-	5107- 5166-	4856- 4916-	3494- 3552-	4858- 4986-		3668- 3770-	3449- 3518-	3442-3574
MEDINA GRIMSBY WHIRLPOOL	4960- 5148-5163	4751- 4761- 4951-	5224- 5260- 5402-	4970- 5016- 5148-	3586- 3631-	5016- 5027- 5217-		3792- 3804- 3983-	3552- 3593- 3722-?	3574-
QUEENSTON	5163-	4967-	5412-	5164-		5227-		3988-	3727-?	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina		Medina	Medina	Medina
PRODUCING INTERVAL	5005-5102	4815-4907	5225-5359	5017-5100	3640-3678	5053-5147		3815-3986	3596-3636	3594-3668
TOTAL DEPTH	5269	5040	5455	5232	3754	5317	4890	4094	3731	3738
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Cabot Head	Queenston	Queenston	Queenston	Queenston?	Queenston
RESULTS	2,890 Mcf AF 1,300 psi/72 hrs. development Kantz Corners field	984 Mcf AF 1,200 psi/72 hrs. development Papenfuse field	2,300 Mcf AF 1,325 psi/72 hrs. development Cochranton field	2,500 Mcf AF 1,300 psi/72 hrs. development East Fairfield pool Kantz Corners field	1,100 Mcf AF 990 psi/2 days development Lundys Lane pool Conneaut field	2,300 Mcf AF 1,340 psi/72 hrs. development Deckard pool Cochranton field	Show of gas extension Keborts pool Vernon field	480 Mcf AF 1,200 psi/912 hrs. development Indian Springs pool Conneaut field	1,200 Mcf AF 1,010 psi/2 days development Lundys Lane pool Conneaut field	990 Mcf AF 1,030 psi/2 days development Lundys Lane pool Conneaut field

COUNTY Permit Number	Crawford 21550	Crawford 21553	Crawford 21557	Crawford 21558	Crawford 21559	Crawford 21568	Crawford 21569	Crawford 21575	Crawford 21587	Crawford 21588
NAME OF WELL	Jake Beachy #1	Ernest P. Brunst #1	O. & M. Richmond #1	G. M. Agnew #1	M. & A. Dearborn #1	J. Stevens #1	H. & C. Farley #1	Fox #1	Ridgefield Farms #4	Ridgefield Farms #5
OPERATOR	Cabot Oil & Gas Corporation	Walnoco Oil & Gas Company #W-132A	Mitchell Energy Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Berea Oil & Gas Corporation	Mitchell Energy Corporation	N.Y.S. Natural Gas Company	4-R Investment Partnership	4-R Investment Partnership #5
TOWNSHIP	Wayne	Rome	Summerhill	Summit	Summerhill	Woodcock	Summit	Rome	Cussewago	Cussewago
QUADRANGLE	Cochranton	Spartansburg	Harmonsburg	Harmonsburg	Harmonsburg	Blooming Valley	Harmonsburg	Titusville North	Edinboro South	Edinboro South
LATITUDE	10,500 ft. S 41°35'00"	11,700 ft. S 41°47'30"	1,500 ft. S 41°42'30"	14,700 ft. S 41°42'30"	8,700 ft. S 41°45'00"	9,200 ft. S 41°45'00"	12,600 ft. S 41°42'30"	6,900 ft. S 41°45'00"	1,300 ft. S 41°50'00"	14,900 ft. S 41°52'30"
LONGITUDE	1,000 ft. W 80°00'00"	11,000 ft. W 79°40'00"	7,500 ft. W 80°20'00"	7,500 ft. W 80°17'30"	10,800 ft. W 80°17'30"	5,230 ft. W 80°02'30"	10,100 ft. W 80°20'00"	500 ft. W 79°42'30"	10,150 ft. W 80°10'00"	650 ft. W 80°12'30"
DATE COMPLETED	2-26-82	3-2-82	4-3-82	4-30-82	4-12-82	2-25-82	5-5-82	3-4-82	5-6-82	5-1-82
ELEVATION	1425 GR	1580 GR	1148 GR	1142 GR	1191 GR	1432 GR	1165 GR	1590 GR	1360 GR	1340 GR
LOGS RECEIVED AND LOGGED INTERVALS	PCL: 5015-5282	FDC/GR: 500-5223 DLL/GR: 797-5215 Laser: 4840-5080	FDC/SNL; 9-4188 LL: 391-4183	FDC/SNL: 0-4305 DLL: 2300-4305	FDC/SNL: 3-4205 DLL: 498-4205	PDC: 4300-4726	FDC/SNL: 20-5372 DLL: 450-4272		FDC/SNL: 2046-4176 LL: 3186-4173	FDC/SNL: 2076-4154 LL: 3608-4151
TULLY		3408-	2414-	2525-	2451-		2498-		2454-	2412-
ONONDAGA LIMESTONE CHERT		3652-	2575-	2685-	2616-		2652-	3976-	2656-	2616-
ORISKANY		3810-		2882-	2810-		2851-		2896-	
HELDERBERG KEYSER-BASS ISLANDS		3828-	2774-	2895-	2818-		2867-		2905-	2858-
SALINA GUELPH-LOCKPORT		3878- 4508-	2867- 3528-	2974- 3676-	2891- 3578-		2947- 3645-	4172- 4576-	2973- 3566-	2941- 3540-
CLINTON IRONDEQUOIT	4942- 5003-	4717- 4836-	3766- 3866-	3874- 3988-	3784- 3887-	4388-	3843- 3957-	4920-	3830- 3888-	3784- 3856-
MEDINA GRIMSBY WHIRLPOOL	5050- 5110- 5236-	4859- 4865- 5052-	3894- 3900- 4081-	4018- 4025- 4208-	3914- 3920- 4102-	4414- 4421- 4600-	3986- 3992- 4180-	4950-	3936- 3970- 4094-	3902- 3918- 4060-
QUEENSTON	5249-	5069-	4086-	4217-	4108-	4616-	4184-	5148-	4100-	4067-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5090-5196	4888-5069	3913-4084	4039-4214	3931-4106	4464-4602	4007-4181	5018-5142	3950-4097	3919-4062
TOTAL DEPTH	5330	5225	4190	4312	4211	4780	4284	5305	4190	4190
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	852 Mcf AF 1,450 psi/72 hrs. extension Frenchtown field	1,200 Mcf AF 1,310 psi/72 hrs. development Rome pool Athens field	380 Mcf AF 1,250 psi/912 hrs. development Indian Springs pool Conneaut field	421 Mcf AF 1,160 psi/76 hrs. development Carlson pool Conneaut field	375 Mcf AF 1,120 psi/76 hrs. development Indian Springs pool Conneaut field	1,500 Mcf AF 1,250 psi/72 hrs, extension Woodcock pool Richmond Township field	502 Mcf AF 1,300 psi/336 hrs. development Carlson pool Conneaut field	3,000 Mcf AF 1,340 psi/48 hrs. development Rome pool Athens field	930 Mcf AF 1,045 psi/2 days development Cussewago field	1,184 Mcf AF 1,000 psi/2 days development Indian Springs pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21601	Crawford 21617	Crawford 21621	Crawford 21625	Crawford 21632	Crawford 21633	Crawford 21649	Crawford 21650	Crawford 21652	Crawford 21653
NAME OF WELL	H. K. Getsinger #1	R. L. & W. Thompson #1	Edward Styborski #2	M. Paul #1	Howard Matteson #1	Leo Nadolny #1	David Aul #1	Robert C. Johnson #1	Paul E. Kunz #1	Joseph Lorenz #1
OPERATOR	Mitchell Energy Corporation	Mitchell Energy Corporation	Wainoco Oil & Gas Company #21A	Wainoco Oil & Gas Company #W-152A	Wainoco Oil & Gas Company #W-125A	Wainoco Oil & Gas Company #W-150A	Wainoco Oil & Gas Company #W-146A	Wainoco Oil & Gas Company #W-139A	Wainoco Oil & Gas Company #W-138A	Wainoco Oil & Gas Company #W-154A
TOWNSHIP	Summerhill	Summit	Cambridge	Rome	Rome	Rome	Rome	Rome	Rome	Rome
QUADRANGLE	Harmonsburg	Harmonsburg	Cambridge Springs	Titusville North	Titusville North	Spartansburg	Titusville North	Titusville North	Titusville North	Titusville North
LATITUDE	8,500 ft. S 41°45'00"	8,300 ft. S 41°42'30"	2,400 ft. S 41°47'30"	11,850 ft. S 41°45'00"	12,600 ft. S 41°45'00"	11,800 ft. S 41°47'30"	4,200 ft. S 41°45'00"	7,650 ft. S 41°45'00"	100 ft. S 41°42'30"	1,950 ft. S 41°42'30"
LONGITUDE	10,400 ft. W 80°15'00"	6,450 ft. W 80°17'30"	3,000 ft. W 80°02'30"	2,600 ft. W 79°40'00"	5,700 ft. W 79°40'00"	200 ft. W 79°40'00"	8,250 ft. W 79°37'30"	5,800 ft. W 79°37'30"	11,100 ft. W 79°37'30"	2,150 ft. W 79°40'00"
DATE COMPLETED	5-30-82	4-22-82	5-22-82	6-8-82	6-1-82	5-20-82	5-27-82	6-4-82	5-13-82	6-7-82
ELEVATION	1292 GR	1310 GR	1345 GR	1625 GR	1640 GR	1720 GR	1600 GR	1590 GR	1460 GR	1600 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL: 50-4329 DLL: 450-4324	DLL: 2793-4400	FDC/GR: 0-4463 SNP/GR: 430-4487	FDC/GR: 0-5474 GR/GD: 575-5471	GR/GD: 575-5442	FDC/GR: 14-5401 LL/GR: 514-5399 Laser: 5000-5404	FDC/GR: 486-5373 LL: 14-5368	FDC/GR: 50-5404 LL: 548-5403	FDC/GR: 0-5338 GR/GD: 550-5334	FDC/GR: 0-5490 GR/GD: 650-5490
TULLY	2584-	2666-	2701-	3600-	3590-	3601-	3527-	3569-	3479-	3629-
ONONDAGA LIMESTONE CHERT	2751-	2833-	2905-	3854-	3838-	3851-	3780-	3826-	3736-	3885-
ORISKANY	2948-	3035-		4001-		4004-				
HELDERBERG KEYSER-BASS ISLANDS	2958-	3046-	3098-	4010-	3986-	4018-	3922-	3923-	3880-	4028-
SALINA GUELPH-LOCKPORT	3027- 3714-	3121-	3167- 3833-	4074- 4735-	4057- 4742-	4064- 4686-	3991- 4648-	4049- 4690-	3958- 4610-	4104- 4742-
CLINTON IRONDEQUOIT	3900- 4012-	4131-	4026- 4143-	5007- 5076-	4944- 5079-	4903- 5028-	4864- 4992-	4903- 5039-	4824- 4961-	4976- 5108-
MEDINA GRIMSBY WHIRLPOOL	4039- 4046- 4226-	4160- 4167- 4344-	4182- 4212- 4353-	5132- 5165- 5290-	5103- 5110- 5295-	5051- 5058- 5238-	5015- 5021- 5203-	5063- 5068- 5250-	4985- 4992- 5175-	5133- 5139- 5325-
QUEENSTON	4232-	4352-	4364-	5302-	5306-	5260-	5214-	5263-	5185-	5336-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4060-4230	4182-4350	4222-4360	5196-5297	5176-5304	5087-5256	5052-5212	5128-5256	5078-5181	5229-5334
TOTAL DEPTH	4360	4466	4489	5477	5470	5401	5375	5406	5338	5497
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	417 Mcf AF 1,110 psi/336 hrs. development Indian Springs pool Conneaut field	395 Mcf AF 1,100 psi/336 hrs. development Carlson pool Conneaut field	327 Mcf AF 1,170 psi/72 hrs. development Cambridge pool Cambridge Springs field	539 Mcf AF 1,300 psi/72 hrs. development Vrooman pool Church Run field	467 Mcf AF 1,340 psi/72 hrs. development Rome pool Athens field	501 Mcf AF 1,360 psi/72 hrs. development Hatchtown pool Church Run field	933 Mcf AF 1,350 psi/72 hrs. extension Vrooman pool Church Run field	603 Mcf AF 1,300 psi/72 hrs. development Vrooman pool Church Run field	713 Mcf AF 1,280 psi/72 hrs. extension Vrooman pool Church Run field	379 Mcf AF 1,330 psi/72 hrs. development Vrooman pool Church Run field

COUNTY Permit Number	Crawford 21655	Crawford 21656	Crawford 21657	Crawford 21658	Crawford 21663	Crawford 21664	Crawford 21666	Crawford 21667	Crawford 21669	Crawford 21670
NAME OF WELL	L. M. Agnew #1	Paul A. Held #1	Devon Hummel #1	Eleanor G. Pusz #1	Edward Beach #1	Noah Byler #1	Paul E. Kunz #1	Howard Matteson #2	Virginia Graham #1	Dale W. Gum #1
OPERATOR	Mitchell Energy Corporation	Walnoco Oil & Gas Company #5A	Walnoco Oil & Gas Company #15A	Walnoco Oil & Gas Company #9A	Walnoco Oil & Gas Company #W-145A	Walnoco Oil & Gas Company #W-160A	Walnoco Oil & Gas Company #W-164A	Walnoco Oil & Gas Company #W-162A	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Summit	Cambridge	Cambridge	Cambridge	Rome	Rome	Rome	Rome	Wayne	Wayne
QUADRANGLE	Harmonsburg	Cambridge Springs	Cambridge Springs	Cambridge Springs	Spartansburg	Titusville North	Titusville North	Titusville North	Cochranton	Cochranton
LATITUDE	5,300 ft. S 41°40'00"	500 ft. S 41°47'30"	2,100 ft. S 41°47'30"	200 ft. S 41°47'30"	14,000 ft. S 41°47'30"	6,950 ft. S 41°45'00"	13,300 ft. S 41°45'00"	11,700 ft. S 41°45'00"	11,800 ft. S 41°35'00"	5,100 ft. S 41°37'30"
LONGITUDE	8,000 ft. W 80°17'30"	4,000 ft. W 80°02'30"	9,300 ft. W 80°02'30"	6,300 ft. W 80°02'30"	8,200 ft. W 79°37'30"	800 ft. W 79°40'00"	10,150 ft. W 79°37'30"	7,500 ft. W 79°40'00"	9,500 ft. W 80°00'00"	2,000 ft. W 80°00'00"
DATE COMPLETED	5-11-82	5-15-82	6-14-82	6-8-82	6-17-82	6-1-82	5-21-82	5-23-82	6-12-82	6-7-82
ELEVATION	1089 GR	1330 GR	1330 GR	1320 GR	1755 GR	1675 GR	1500 GR	1610 GR	1500 GR	1500 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/SNL: 50-4294 OLL: 2731-4274	FDC/GR: 430-4452 SNP/GR: 430-4452	FOC/SNP: 51-4432 OIL/GR: 445-4424	FDC/GR: 79-4431	FOC/GR: 21-5472 LL/GR: 480-5469	FDC/GR: 0-5418 IL/GR: 2500-5439	FOC/GR: 0-5369 GR/GO: 550-5366	FDC/GR: 0-5411 GR/GO: 520-5408	GR: 4950-5340	GR/GO: 620-5391 GR/FOC: 0-5391
TULLY	2506-	2657-	2620-	2643-	3650-	3620-	3514-	3546-		3466-
ONONDAGA LIMESTONE CHERT	2664-	2862-	2814-	2847-	3902-	3869-	3770-	3790-		3686-
ORISKANY	2859-				4058-					3847-
HELDERBERG KEYSER-BASS ISLANDS	2869-	3055-	3015-	3039-	4069-	4015-	3912-	3950-		3869- 3889-
SALINA GUELPH-LOCKPORT	2948- 3652-	3127- 3768-	3085- 3724-	3113- 3761-	4122- 4750-	4086- 4748-	3987- 4642-	4024- 4700-		3971- 4710-
CLINTON IRONDEQUOIT	3850- 3973-	3980- 4096-	3936- 4047-	3957- 4071-	4973- 5097-	4954- 5085-	4860- 4994-	4913- 5038-	4975- 5037-	4994- 5059-
MEDINA GRIMSBY WHIRLPOOL	4001- 4008- 4198-	4119- 4168- 4354-	4072- 4116- 4357-	4096- 4141- 4280-	5120- 5126- 5314-	5108- 5115- 5296-	5018- 5025- 5207-	5061- 5070- 5252-	5091- 5132- 5270-	5115- 5151- 5293-
QUEENSTON	4203-	4367-	4367-	4294-	5323-	5307-	5220-	5264-	5285-	5303-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4026-4109	4170-4316	4151-4264	4162-4282	5194-5321	5182-5302	5094-5216	5124-5262	5134-5227	5133-5251
TOTAL DEPTH	4466	4457	4434	4433	5474	5449	5370	5412	5325	5400
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	392 Mcf AF 1,125 psi/336 hrs. development Carlson pool Conneaut field	163 Mcf AF 1,160 psi/72 hrs. development Cambridge pool Cambridge Springs field	292 Mcf AF 1,200 psi/72 hrs. development Cambridge pool Cambridge Springs field	239 Mcf AF 1,130 psi/72 hrs. development Cambridge pool Cambridge Springs field	4,550 Mcf AF 1,370 psi/10 days development Hatchtown pool Church Run field	432 Mcf AF 1,340 psi/10 days development Vrooman pool Church Run field	823 Mcf AF 1,355 psi/72 hrs. development Vrooman pool Church Run field	696 Mcf AF 1,345 psi/72 hrs. extension Rome pool Athens field	1,200 Mcf AF 1,400 psi/72 hrs. development Round Knob pool Kantz Corners field	1,000 Mcf AF 1,375 psi/72 hrs. development Cochranton field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21671	Crawford 21672	Crawford 21673	Crawford 21674	Crawford 21677	Crawford 21678	Crawford 21679	Crawford 21680	Crawford 21685	Crawford 21687
NAME OF WELL	John H. Heltzel #2	Grover Heffernan #1	Clyde F. Morell #1	Leroy Swogger #1	Charles W. Anderson #1	William H. Engel #1	E. Morton #1	Ridgefield Farms #6	Robert B. Adams #2	M. & F. Falla #1
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Wainoco Oil & Gas Company #W-123A	Wainoco Oil & Gas Company #14A	Wainoco Oil & Gas Company #7A	4-R Investment Partnership #6	G. P. Oil and Gas, Incorporated	Mitchell Energy Corporation
TOWNSHIP	Wayne	Wayne	East Mead	Fairfield	Rome	Cambridge	Cambridge	Cussewago	Beaver	Summit
QUADRANGLE	Cochranton	Sugar Lake	Cochranton	Geneva	Titusville North	Cambridge Springs	Cambridge Springs	Edinboro South	Beaver Center	Harmonsburg
LATITUDE	1,450 ft. S 41°32'30"	10,100 ft. S 41°32'30"	100 ft. S 41°35'00"	12,700 ft. S 41°50'00"	9,000 ft. S 41°45'00"	400 ft. S 41°47'30"	14,100 ft. S 41°50'00"	1,200 ft. S 41°50'00"	12,850 ft. S 41°52'30"	14,700 ft. S 41°42'30"
LONGITUDE	5,700 ft. W 80°00'00"	8,800 ft. W 79°57'30"	3,800 ft. W 80°02'30"	8,150 ft. W 80°07'30"	4,350 ft. W 79°40'00"	1,100 ft. W 80°02'30"	10,000 ft. W 80°00'00"	8,350 ft. W 80°10'00"	11,150 ft. W 80°22'30"	10,900 ft. W 80°20'00"
DATE COMPLETED	6-2-82	6-4-82	5-21-82	5-25-82	6-16-82	5-28-82	6-3-82	5-11-82	6-4-82	6-19-82
ELEVATION	1380 GR	1420 GR	1205 GR	1395 GR	1650 GR	1315 GR	1225 GR	1350 GR	870 GR	1228 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 4870-5268	SON: 4580-5420 PDC: 5150-5350	GR/FDC: 0-3950 GR/CCL: 4420-4866	GR: 4850-5194	FDC/GR: 31-5444 LL/GR. 476-5446	OIL/LL: 415-4432 FDC/GR: 59-4434	FDC: 0-4368 GR/IL: 438-4365	FDC/SNL. 2149-4176 LL. 3341-4173 IL: 2047-3483		FDC/GR: 2450-4330 GD: 2450-4330
TULLY			3065-		3586-	2654-	2558-	2438-		2575-
ONONDAGA LIMESTONE CHERT			3268-		3837-	2860-	2766-	2642-	2035-	2734-
ORISKANY			3450-						2290-	2934-
HELDERBERG KEYSER-BASS ISLANDS			3466- 3496-		3988-	3051-	2958-	2882-		2940-
SALINA GUELPH-LOCKPORT		4806-	3562-		4058- 4721-	3122- 3772-	3028- 3686-	2966- 3560-	2640- 2900-	3014- 3700-
CLINTON IRONDEQUOIT	4930- 4992-	5004- 5136-	4528- 4588-	4870- 4928-	4963- 5061-	4006- 4096-	3886- 4001-	3792- 3868-	3234-	3916- 4032-
MEDINA GRIMSBY WHIRLPOOL	5048- 5090- 5229-	5170- 5180- 5370-	4651- 4686- 4815-	4978- 5024- 5172-	5085- 5093- 5272-	4120- 4168- 4307-	4025- 4036- 4208-	3914- 3940- 4071-	3314- 3440-	4062- 4068- 4251-
QUEENSTON	5238-	5382-	4834-	5184-	5285-	4318-	4220-	4080-	3443-	4261-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5058-5192	5239-5337	4690-4778	5024-5127	5150-5282	4172-4315	4072-4216	3941-4073	3315-3349	4082-4259
TOTAL DEPTH	5305	5474	4910	5205	5446	4436	4378	4203	3490	4337
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,407 Mcf AF 1,100 psi/72 hrs. development Round Knob pool Kantz Corners field	1,870 Mcf AF 1,350 psi/72 hrs. development Oeckard pool Cochranton field	1,300 Mcf AF 1,425 psi/72 hrs. development Papenfuse field	1,800 Mcf AF 1,400 psi/72 hrs. development Kantz Corners field	866 Mcf AF 1,340 psi/10 days development Rome pool Athens field	270 Mcf AF 1,110 psi/72 hrs. development Cambridge pool Cambridge Springs field	311 Mcf AF 1,110 psi/72 hrs. development Cambridge pool Cambridge Springs field	1,596 Mcf AF 825 psi/48 hrs. development Cussewago field	800 Mcf AF 1,200 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	407 Mcf AF 1,250 psi/336 hrs. extension Carlson pool Conneaut field

COUNTY Permit Number	Crawford 21688	Crawford 21689	Crawford 21691	Crawford 21694	Crawford 21702	Crawford 21704	Crawford 21707	Crawford 21711	Crawford 21715	Crawford 21719
NAME OF WELL	W. & L. Shaw #1	M. R. Wyckoff #1	Floyd J. Gordon #3	Richard Deiss #1	Anna Boyle #1	Arthur E. Smith #1	Fox #2	Grover Heffernan #2	William R. Lutz #3	M. & M. Ruggieri #1
OPERATOR	Mitchell Energy Corporation	Mitchell Energy Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	NYS Natural Gas Company	Cabot Oil & Gas Corporation	Cardinal Oil Company #40	Mitchell Energy Corporation
TOWNSHIP	Summerhill	Summerhill	Cochranton	East Mead	Wayne	East Mead	Rome	Wayne	Spring	Summit
QUADRANGLE	Harmonsburg	Harmonsburg	Cochranton	Cochranton	New Lebanon	Cochranton	Titusville North	Sugar Lake	Conneautville	Harmonsburg
LATITUDE	2,500 ft. S 41°45'00"	1,950 ft. S 41°42'30"	6,100 ft. S 41°32'30"	9,900 ft. S 41°37'30"	3,950 ft. S 41°30'00"	11,650 ft. S 41°37'30"	9,050 ft. S 41°45'00"	8,050 ft. S 41°32'30"	8,320 ft. S 41°50'00"	9,500 ft. S 41°42'30"
LONGITUDE	10,400 ft. W 80°15'00"	5,950 ft. W 80°17'30"	3,750 ft. W 80°02'30"	10,700 ft. W 80°02'30"	10,950 ft. W 80°00'00"	8,900 ft. W 80°02'30"	2,075 ft. W 79°42'30"	10,400 ft. W 79°57'30"	700 ft. W 80°17'30"	1,000 ft. W 80°20'00"
DATE COMPLETED	5-22-82	6-4-82	6-29-82	7-3-82	7-3-82	6-22-82	6-1-82	6-18-82	9-11-82	6-11-82
ELEVATION	1265 GR	1347 GR	1060 GR	1470 GR	1340 GR	1400 GR	1522 GR	1470 GR	1210 GR	1056 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/GR: 0-4419 GO: 450-4420 GR: 0-4419	GR. 4550-4967	FDC/GR: 0-5121	FDC/GR: 0-5430 GO/GR: 550-5428	GR: 4600-4984	FDC/GR: 0-5176	GR: 5000-5427	GR: 2300-3970	FDC/SNL: 420-4176 DLL: 450-4130
TULLY	2518-	2666-		3260-	3508-		3396-		2306-	2384-
ONONDAGA LIMESTONE CHERT	2682-	2828-		3456-	3718-		3637-		2490-	2548-
ORISKANY	2873-			3639-	3872-				2690-2712	2749-
HELDERBERG KEYSER-BASS ISLANDS	2882-	3026-		3656- 3670-	3900-		3801-		2712-2759	2751-
SALINA GUELPH-LOCKPORT	2949- 3625-	3105- 3797-		3740- 4468-	4001- 4696-		3871- 4533-		2759- 3388-	2835- 3534-
CLINTON IRONDEQUOIT	3843- 3942-	4024- 4122-	4622- 4681-	4741- 4800-	4947- 5072-	4668- 4727-	4738- 4873-	5062- 5161-	3635- 3706-	3750- 3853-
MEDINA GRIMSBY WHIRLPOOL	3981- 4067- 4149-	4150- 4156- 4338-	4738- 4773- 4919-	4848- 4885- 5024-	5107- 5126- 5322-	4775- 4809- 4956-	4897- 4904- 5085-	5192- 5203- 5398-	3743- 3763- 3912-	3882- 3888- 4020-
QUEENSTON	4159-	4397-	4933-	5039-	5332-	4971-	5102-	5405-	3922-	4030-
PRODUCING FORMATION	3986-4156	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	Medina	4172-4345	4741-4867	4860-4982	5160-5274	4810-4912	4966-5098	5225-5352	3765-3857	3905-4078
TOTAL DEPTH	4260	4428	5022	5124	5436	5080	5176	5493	3984	4178
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	295 Mcf AF 1,000 psi/144 hrs. development Indian Springs pool Conneaut field	380 Mcf AF 1,200 psi/216 hrs. development Indian Springs pool Conneaut field	4,500 Mcf AF 1,450 psi/72 hrs. development East Fairfield pool Kantz Corners field	800 Mcf AF 1,375 psi/72 hrs. development Papenfuse field	2,700 Mcf AF 1,400 psi/72 hrs. development McDaniels pool Cochranton field	1,100 Mcf AF 1,375 psi/72 hrs. development Papenfuse field	20 Mcf Nat. 1,000 Mcf AF 1,275 psi/48 hrs. development Rome pool Athens field	1,800 Mcf AF 1,425 psi/72 hrs. development Oeckard pool Cochranton field	177 Mcf AF 1,050 psi/96 hrs. development Indian Springs pool Conneaut field	463 Mcf AF 1,180 psi/144 hrs. development Carlson pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21723	Crawford 21724	Crawford 21725	Crawford 21727	Crawford 21728	Crawford 21734	Crawford 21735	Crawford 21740	Crawford 21742	Crawford 21744
NAME OF WELL	Jacob Miller #1	F. Morris #1	Oana H. Martin #1	Manes A. Troyer #1	Arthur O. Muir #1	Richard Ball #1	C. & J. Walker #1	Harry Gallant #1	Russell E. Hummer #1	M. Kunz #1
OPERATOR	Wainoco Oil & Gas Company #W-144A	Wainoco Oil & Gas Company #W-149A	Wainoco Oil & Gas Company #W-173A	Wainoco Oil & Gas Company #W-174A	Wainoco Oil & Gas Company #W-169A	Meridian Exploration #628	Mitchell Energy Corporation	Wainoco Oil & Gas Company #4A	Wainoco Oil & Gas Company #W-168A	Wainoco Oil & Gas Company #W-131A
TOWNSHIP	Rome	Rome	Rome	Rome	Rome	Rockdale	Summit	Venango	Rome	Rome
QUADRANGLE	Spartansburg	Spartansburg	Spartansburg	Titusville North	Titusville North	Miller's Station	Harmonsburg	Cambridge Springs	Titusville North	Titusville North
LATITUDE	8,400 ft. S 41°47'30"	14,300 ft. S 41°47'30"	8,750 ft. S 41°47'30"	10,100 ft. S 41°45'00"	14,950 ft. S 41°45'00"	5,800 ft. S 41°50'00"	6,650 ft. S 41°40'00"	10,300 ft. S 41°52'30"	1,600 ft. S 41°42'30"	10,100 ft. S 41°45'00"
LONGITUDE	4,700 ft. W 79°40'00"	2,750 ft. W 79°40'00"	7,250 ft. W 79°37'30"	6,900 ft. W 79°37'30"	6,850 ft. W 79°40'00"	5,900 ft. W 79°57'30"	2,250 ft. W 80°17'30"	7,550 ft. W 80°05'00"	9,150 ft. W 79°37'30"	500 ft. W 79°42'30"
DATE COMPLETED	6-9-82	6-28-82	8-4-82	6-16-82	6-23-82	7-18-82	6-26-82	6-21-82	8-1-82	8-16-82
ELEVATION	1645 GR	1725 GR	1670 GR	1510 GR	1665 GR	1170 GR	1132 GR	1180 GR	1595 GR	1590 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 19-5299 LL/GR: 432-5296		FDC/GR: 29-5349 LL/GR: 556-5336	FDC/GR: 0-5372 GR/GO: 550-5367	FDC/GR: 59-5508 LL/GR: 465-5504	FDC/GR: 2199-4254 OIL/LL: 2200-4254	FDC/GR: 0-4368 GR/GO: 450-4363	OIL/GR: 398-4125 FDC/SNP: 0-4128	FDC/GR: 50-5441	FDC/GR: 42-5349 OLL: 550-5330
TULLY	3486-	3610-	3530-	3520-	3621-	2530-	2575-	2329-	3631-	3491-
ONONDAGA LIMESTONE CHERT	3731-	3861-	3784-	3778-	3870-	2748-	2739-	2547-	3890-	3733-
ORISKANY	3895-	4012-	3939-			2935-	2932-			
HELDERBERG KEYSER-BASS ISLANDS	3910-	4057-	3950-	3924-	4020-	2956-	2942-	2699-	4028-	3898-
SALINA GUELPH-LOCKPORT	3956- 4573-	4081- 4699-	4000- 4637-	4001- 4630-	4094- 4770-	2998- 3620-	3018- 3730-	2864- 3485-	4104- 4777-	3972- 4632-
CLINTON IRONDEQUOIT	4798- 4914-	4976- 5038-	4856- 4980-	4850- 4986-	4983- 5118-	3826- 3940-	3939- 4056-	3694- 3788-	4993- 5127-	4835- 4970-
MEDINA GRIMSBY WHIRLPOOL	4937- 4944- 5122-	5090- 5250-	5003- 5009- 5188-	5011- 5017- 5200-	5143- 5150- 5334-	3964- 3973- 4146-	4084- 4092- 4275-	3811- 3864- 3994-	5152- 5158- 5343-	4995- 5002- 5182-
QUEENSTON	5141-	5268-	5206-	5211-	5346-	4157-	4282-	4002-	5354-	5195-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5024-5134	5135-5264	5062-5203	5078-5209	5237-5341	4023-4090	4110-4280	3867-4004	5247-5353	5057-5194
TOTAL DEPTH	5285	5408	5355	5373	5510	4256	4370	4130	5502	5352
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	947 Mcf AF 1,315 psi/72 hrs. development Rome pool Athens field	3,033 Mcf AF 1,335 psi/240 hrs. development Rome pool Athens field	713 Mcf AF 1,345 psi/240 hrs, development Hatchtown pool Church Run field	2,316 Mcf AF 1,430 psi/10 days development Vrooman pool Church Run field	235 Mcf AF 1,290 psi/72 hrs, development Rome pool Athens field	362 Mcf AF 1,210 psi/168 hrs, development Rockdale field	450 Mcf AF 1,150 psi/480 hrs. extension Carlson pool Conneaut field	353 Mcf AF 1,180 psi/72 hrs. extension Cambridge Springs field	1,205 Mcf AF 1,195 psi/240 hrs. development Vrooman pool Church Run field	1,892 Mcf AF 1,200 psi/72 hrs. development Rome pool Athens field

COUNTY Permit Number	Crawford 21745	Crawford 21747	Crawford 21748	Crawford 21749	Crawford 21752	Crawford 21753	Crawford 21762	Crawford 21765	Crawford 21772	Crawford 21773
NAME OF WELL	Alan Marley #1	C. W. Morris #1	C. W. Morris #2	Country Royals C. B. Assoc. #1	Bruce Vroman #1	Bruce Vroman #2	Daniel O. Grinnell #1	James R. Allen #1	John W. Walker #2	J. Reid Kerr #1
OPERATOR	Wainoco Oil & Gas Company #W-151A	Wainoco Oil & Gas Company #W-126A	Wainoco Oil & Gas Company #W-127A	Wainoco Oil & Gas Company #W-147A	Wainoco Oil and Gas Company #W149A	Wainoco Oil and Gas Company #W156A	Wainoco Oil & Gas Company #16A	Mitchell Energy Corporation	Wainoco Oil & Gas Company #13A	Wainoco Oil & Gas Company #W-165A
TOWNSHIP	Rome	Rome	Rome	Rome	Rome	Rome	Cambridge	Sadsbury	Venango	Rome
QUADRANGLE	Titusville North	Titusville North	Titusville North	Titusville North	Grand Valley	Grand Valley	Cambridge Springs	Conneaut Lake	Cambridge Springs	Titusville North
LATITUDE	4,900 ft. S 41°45'00"	8,900 ft. S 41°45'00"	11,100 ft. S 41°45'00"	1,200 ft. S 41°45'00"	10,950 ft. S 41°45'00"	8,950 ft. S 41°45'00"	13,500 ft. S 41°50'00"	11,300 ft. S 41°37'30"	4,500 ft. S 41°50'00"	800 ft. S 41°42'30"
LONGITUDE	2,600 ft. W 79°40'00"	11,000 ft. W 79°37'30"	11,200 ft. W 79°37'30"	900 ft. W 79°40'00"	10,600 ft. W 79°35'00"	9,150 ft. W 79°35'00"	6,700 ft. W 80°05'00"	5,150 ft. W 80°17'30"	600 ft. W 80°05'00"	3,750 ft. W 79°37'30"
DATE COMPLETED	8-2-82	7-25-82	8-1-82	7-27-82	6-23-82	6-30-82	6-29-82	8-9-82	7-26-82	8-8-82
ELEVATION	1695 GR	1620 GR	1640 GR	1720 GR	1650 GR	1715 GR	1260 GR	1134 GR	1170 GR	1505 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 0-5470 OLL: 600-5473	FOC/GR: 0-5460 GR/GD: 600-5459	FOC/GR: 31-5472 LL/GR: 555-5470	FOC/GR: 29-5458 LL/GR: 496-5457	FOC/GR: 11-5562 GR/GD: 600-5562	FOC/GR: 0-5562 GR/GD: 650-5585	FOC/GR: 50-4296	FOC/SNL: 400-4543 LL/GR: 22-4545	FOC/GR: 430-4182 OIL/LL: 430-4183	FOC/GR: 24-5440 LL/GR: 510-5437
TULLY	3620-	3588-	3628-	3645-	3684-	3738-	2533-	2726-	2396-	3554-
ONONDAGA LIMESTONE CHERT	3870-	3838-	3883-	3894-	3948-	4005-	2734-	2884-	2603-	3819-
ORISKANY								3085-		
HELDERBERG KEYSER-BASS ISLANDS	4027-	3989-	4030-	4044-	4084-	4150-	2931-	3091-	2811-	3957-
SALINA GUELPH-LOCKPORT	4100- 4730-	4014- 4704-	4105- 4742-	4109- 4744-	4154- 4814-	4223- 4857-	2995- 3616-	3186- 3930-	2878- 3500-	4033- 4713-
CLINTON IRONDEQUOIT	4944- 5074-	4917- 5056-	4960- 5093-	4968- 5096-	5023- 5164-	5031- 5216-	3831- 3944-	4176- 4230-	3697- 3815-	4929- 5062-
MEDINA GRIMSBY WHIRLPOOL	5098- 5105- 5290-	5079- 5086- 5269-	5116- 5123- 5305-	5120- 5127- 5304-	5188- 5194- 5378-	5239- 5245- 5432-	3968- 4013- 4151-	4277- 4329- 4456-	3839- 3879- 4020-	5086- 5093- 5278-
QUEENSTON	5301-	5272-	5318-	5317-	5392-	5441-	4160-	4469-	4032-	5289-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5173-5299	5162-5278	5192-5313	5188-5313	5223-5386	5314-5434	4015-4157	4284-4465	3879-4027	5160-5286
TOTAL DEPTH	5477	5464	5476	5460	5560	5592	4298	4545	4184	5442
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	8,000 Mcf AF 1,270 psi/72 hrs. development Vrooman pool Church Run field	8,000 Mcf AF 1,325 psi/72 hrs. development Vrooman pool Church Run field	793 Mcf AF 1,295 psi/72 hrs. development Vrooman pool Church Run field	231 Mcf AF 1,215 psi/72 hrs. development Vrooman pool Church Run field	3,557 Mcf AF 1,330 psi/72 hrs. development Vrooman pool Church Run field	5,218 Mcf AF 1,340 psi/72 hrs. development Vrooman pool Church Run field	355 Mcf AF 1,165 psi/72 hrs. development Cambridge pool Cambridge Springs field	451 Mcf AF 1,260 psi/192 hrs. New field discovery Conneaut Lake field	1,122 Mcf AF 1,180 psi/72 hrs. development Cambridge Springs field	2,232 Mcf AF 1,300 psi/72 hrs. development Vrooman pool Church Run field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21777	Crawford 21780	Crawford 21788	Crawford 21794	Crawford 21795	Crawford 21796	Crawford 21802	Crawford 21811	Crawford 21812	Crawford 21815
NAME OF WELL	Edward G. Fink #1	Mervin Troyer #1	Matthew W. Fink #1	M. Southall #1	H. Shellito #1	C. & M. Bunnell #1	A. Bellini #1	R. Burke #1	Thomas Wilson #1	Henry Finck #1
OPERATOR	Wainoco Oil & Gas Company #W-176A	Wainoco Oil & Gas Company #W-159A	Wainoco Oil & Gas Company #W-170A	Berea Oil & Gas Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Berea Oil & Gas Corporation	Berea Oil & Gas Corporation	Flanigan Brothers	Meridian Exploration #643
TOWNSHIP	Rome	Rome	Rome	Blooming Valley	Summit	Summit	Richmond	Woodcock	Cussewago	Cambridge Springs
QUADRANGLE	Titusville North	Titusville North	Titusville North	Blooming Valley	Linesville	Harmonsburg	Blooming Valley	Blooming Valley	Edinboro South	Cambridge Springs
LATITUDE	400 ft. S 41°42'30"	4,900 ft. S 41°45'00"	12,750 ft. S 41°45'00"	11,450 ft. S 41°42'30"	8,050 ft. S 41°40'00"	6,350 ft. S 41°40'00"	12,400 ft. S 41°42'30"	12,800 ft. S 41°45'00"	1,600 ft. S 41°47'30"	12,600 ft. S 41°50'00"
LONGITUDE	9,900 ft. W 79°40'00"	100 ft. W 79°40'00"	9,700 ft. W 79°40'00"	4,125 ft. W 80°02'30"	100 ft. W 80°22'30"	9,950 ft. W 80°20'00"	2,225 ft. W 80°00'00"	5,850 ft. W 80°02'30"	3,450 ft. W 80°12'30"	10,800 ft. W 80°02'30"
DATE COMPLETED	7-24-82	8-6-82	8-9-82	7-28-82	11-11-82	9-22-82	8-13-82	8-5-82	8-11-82	10-13-82
ELEVATION	1515 GR	1700 GR	1510 GR	1330 GR	1189 GR	1241 GR	1515 GR	1465 GR	1125 GR	1165 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 29-5328 LL/GR: 515-5330	FDC/GR: 0-5487 LL/GR: 600-5485	FDC/GR: 0-5315 GR/GD: 0-5315	POC: 4200-4728 FDC/GR: 0-4780	FDC/SNL: 2360-4342 DLL: 3250-4337	FDC/SNL: 2400-4395 DLL: 2400-4388	CDL: 0-5042 POC: 4550-4946 LL: 0-5042	POC: 4300-4728	GR: 2250-3921	FDC/GR: 2200-4218 DIL/LL: 2200-4219
TULLY	3413-	3632-	3426-	2928-	2578-	2636-	3238-		2306-	2461-
ONONDAGA LIMESTONE CHERT	3708-	3882-	3672-	3132-	2734-	2792-	3442-		2492-	2665-
ORISKANY				3324-	2932-	2990-	3636-			
HELDERBERG KEYSER-BASS ISLANDS	3867-	4031-	3831-	3334-	2942-	2999-	3648-		2687-	2856-
SALINA GUELPH-LOCKPORT	3942- 4626-	4101- 4759-	3906- 4576-	3419- 4062-	3024- 3740-	3080- 3788-	3718- 4318-		2762- 3410-	2929- 3569-
CLINTON IRONDEQUOIT	4836- 4968-	4967- 5098-	4784- 4919-	4297- 4446-	3944- 4051-	3991- 4101-	4557- 4694-	4464-	3672- 3725-	3768- 3883-
MEDINA GRIMSBY WHIRLPOOL	4992- 5000- 5184-	5122- 5128- 5311-	4944- 4951- 5136-	4474- 4483- 4663-	4080- 4086- 4270-	4130- 4137- 4322-	4720- 4730- 4910-	4490- 4500- 4680-	3762- 3811-	3906- 3929- 4091-
QUEENSTON	5197-	5321-	5148-	4678-	4276-	4332-	4927-	4690-		4100-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5084-5192	5184-5321	5022-5144	4529-4678	4103-4275	4154-4326	4778-4914	4538-4690	3812-3851	3956-4036
TOTAL DEPTH	5330	5490	5320	4792	4346	4397	5044	4802	3930	4220
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Medina	Queenston
RESULTS	2,054 Mcf AF 1,360 psi/72 hrs. development Rome pool Athens field	2,837 Mcf AF 1,240 psi/72 hrs. development Vrooman pool Church Run field	696 Mcf AF 1,250 psi/72 hrs. development Rome pool Athens field	1,400 Mcf AF 1,325 psi/72 hrs. development Blooming Valley field	427 Mcf AF 1,200 psi/168 hrs. development Carlton pool Conneaut field	507 Mcf AF 1,225 psi/160 hrs. extension Carlson pool Conneaut field	800 Mcf AF 1,300 psi/72 hrs. extension Delamater pool Randolph field	1,000 Mcf AF 1,300 psi/72 hrs. extension Woodcock pool Richmond Township field	400 Mcf AF 1,100 psi/96 hrs. development Kastle pool Conneaut field	196 Mcf AF 1,150 psi/72 hrs. development Cambridge Springs field

COUNTY Permit Number	Crawford 21816	Crawford 21817	Crawford 21823	Crawford 21824	Crawford 21825	Crawford 21831	Crawford 21833	Crawford 21837	Crawford 21842	Crawford 21847
NAME OF WELL	Henry Finck #1	F. Florek #1	F. Florek #1	C. Black #1	Muckinhoupt #1	W. Black #2	Blystone/Juber #1	J. Weikal #1	Joseph W. Diley #1	James Kuhn #1
OPERATOR	Meridian Exploration #642	Meridian Exploration #652	Meridian Exploration #653	Ingram Enterprises, Incorporated	Ingram Enterprises, Incorporated	Berea Oil & Gas Corporation	Meridian Exploration #648	Berea Oil & Gas Corporation	Berea Oil & Gas Corporation	Meridian Exploration #625
TOWNSHIP	Cambridge Springs	Cussewago	Venango	Woodcock	Woodcock	Woodcock	Rockdale	Woodcock	Woodcock	Rockdale
QUADRANGLE	Cambridge Springs	Edinboro South	Edinboro South	Blooming Valley	Blooming Valley	Blooming Valley	Cambridge Springs	Blooming Valley	Blooming Valley	Miller's Station
LATITUDE	12,850 ft. S 41°50'00"	10,900 ft. S 41°52'30"	10,750 ft. S 41°52'30"	9,790 ft. S 41°45'00"	9,025 ft. S 41°45'00"	6,450 ft. S 41°45'00"	1,200 ft. S 41°47'30"	6,450 ft. S 41°45'00"	1,400 ft. S 41°45'00"	2,700 ft. S 41°50'00"
LONGITUDE	1,300 ft. W 80°05'00"	6,300 ft. W 80°07'30"	3,700 ft. W 80°07'30"	5,400 ft. W 80°05'00"	10,950 ft. W 80°02'30"	3,000 ft. W 80°05'00"	7,200 ft. W 80°00'00"	7,200 ft. W 80°05'00"	4,050 ft. W 80°05'00"	5,100 ft. W 79°57'30"
DATE COMPLETED	10-7-82	9-14-82	9-22-82	10-25-82	11-12-82	8-22-82	10-16-82	9-12-82	8-30-82	8-30-82
ELEVATION	1150 GR	1425 GR	1390 GR	1450 GR	1390 GR	1350 GR	1245 GR	1390 GR	1295 GR	1150 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2198-4198 LL/GR: 16-4200	FDC/GR: 2200-4266 LL: 2200-4267	FDC/GR: 2260-4261 IL: 2250-4262 PCL: 3900-4235	FDC: 2800-4698	FDC: 2850-4535	GR/FDC: 0-4570 LL: 550-4560 POC: 4150-4538	FDC/GR: 2320-4344 OIL/LL: 2320-4345	GR/FDC: 0-4590 LL: 600-4590 POC: 4150-4538	GR/FDC: 0-4442 LL: 550-4440 PDC: 3800-4432	GR: 3850-4153 GR/LL: 0-4062 FDC/GR: 1897-4062
TULLY	2444-	2504-	2528-	2886-	2859-	2780-	2613-	2802-	2668-	2480-
ONONDAGA LIMESTONE CHERT	2648-	2720-	2744-	3087-	3062-	2980-	2824-	2999-	2869-	2696-
ORISKANY				[illegible]				3192-		2882-
HELDERBERG KEYSER-BASS ISLANDS	2845-	2967-	2984-	3238-	3257-	3123-	3015-	3198-	3064-	2905-
SALINA GUELPH-LOCKPORT	2931- 3546-	3038- 3620-	3058- 3650-	3357- 4102-	3330- 4026-	3248- 3924-	3083- 3727-	3266- 3940-	3136- 3800-	2952- 3530-
CLINTON IRONDEQUOIT	3750- 3864-	3902- 3956-	3888- 3972-	4244- 4372-	4228- 4342-	4166- 4247-	3928- 4049-	4158- 4261-	4002- 4128-	3751- 3870-
MEDINA GRIMSBY WHIRLPOOL	3887- 3909- 4071-	4006- 4034- 4162-	4018- 4032- 4179-	4398- 4406- 4588-	4368- 4377- 4558-	4273- 4282- 4464-	4073- 4084- 4259-	4286- 4336- 4474-	4154- 4163- 4341-	3894- 3903- 4074-
QUEENSTON	4079-	4172-	4188-	4597-	4571-	4476-	4271-	4485-	4350-	4086-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3932-4002	4039-4081	4033-4127	4450-4534	4420-4564	4322-4464	4128-4212	4330-4483	4196-4346	3962-4033
TOTAL DEPTH	4212	4280	4290	4714	4650	4574	4360	4595	4472	4190
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	166 Mcf AF 1,180 psi/168 hrs. development Cambridge Springs field	184 Mcf AF 1,150 psi/168 hrs. extension Cambridge Springs field	254 Mcf AF 1,275 psi/168 hrs. development Cambridge Springs field	75 Mcf Nat. 2,200 Mcf AF 1,400 psi/72 hrs. development Woodcock pool Richmond Township field	100 Mcf Nat. 2,500 Mcf AF 1,400 psi/72 hrs. development Woodcock pool Richmond Township field	1,100 Mcf AF 1,250 psi/72 hrs. development Woodcock pool Richmond Township field	265 Mcf AF 1,180 psi/96 hrs. development Cambridge pool Cambridge Springs field	1,350 Mcf AF 1,250 psi/72 hrs. development Woodcock pool Richmond Township field	1,200 Mcf AF 1,300 psi/72 hrs. extension Woodcock pool Richmond Township field	960 Mcf AF 1,220 psi/168 hrs. development Rockdale field

Figure 34. *(Continued)*

COUNTY Permit Number	Crawford 21859	Crawford 21860	Crawford 21862	Crawford 21874	Crawford 21877	Crawford 21892	Crawford 21909	Erie 20760	Erie 20768	Erie 20769
NAME OF WELL	Walter Bayus #3	Keith Frndak #2	Gerald Fuller #3	Chester Tau #2	John Taylor #4	Hatzo #1	Joseph Moreland #7	Norbert Cross #3	Mitchell #3	Geraldine Hicks #1-8
OPERATOR	Cardinal Oil Company #70	Cardinal Oil Company #79	Cardinal Oil Company #71	Cardinal Oil Company #54	Cardinal Oil Company #42	Ingram Enterprises Inc. #2-81-3	Cardinal Oil Company #53	N.E.A. Cross Company	Eugene & Ernestine Mitchell #19368	Envirogas Incorporated
TOWNSHIP	Cussewago	Cussewago	Cussewago	Cussewago	Cussewago	Hayfield	Cussewago	Waterford	Waterford	Fairview
QUADRANGLE	Conneautville	Edinboro South	Edinboro South	Conneautville	Edinboro South	Meadville	Edinboro South	Waterford	Waterford	Swanville
LATITUDE	13,200 ft. S 41°52'30"	2,060 ft. S 41°50'00"	13,340 ft. S 41°52'30"	2,140 ft. S 41°50'00"	9,040 ft. S 41°50'00"	6,400 ft. S 41°42'30"	3,320 ft. S 41°50'00"	11,750 ft. S 41°57'30"	7,950 ft. S 41°57'30"	2,000 ft. S 42°02'30"
LONGITUDE	2,880 ft. W 80°15'00"	10,620 ft. W 80°12'30"	10,540 ft. W 80°12'30"	3,320 ft. W 80°15'00"	10,480 ft. W 80°12'30"	6,250 ft. W 80°10'00"	5,720 ft. W 80°12'30"	4,200 ft. W 79°55'00"	9,400 ft. W 79°55'00"	6,300 ft. W 80°12'30"
DATE COMPLETED	10-29-82	11-8-82	11-5-82	11-8-82	9-20-82	9-25-82	10-21-82	4-19-79	3-29-80	5-2-79
ELEVATION	1130 GR	1118 GR	1127 GR	1186 GR	1290 GR	1272 GR	1221 GR	1235 GR	1280 GR	819 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2215-3853 GR: 3500-3809	GR: 2150-3845	GR: 3450-3901 FDC/GR: 2050-3901	FDC/GR: 2200-3904 GR: 3600-3978	GR: 3500-4025			FDC/GR: 2250-3939	FDC/GR: 100-3894 CCL/PR: 3725-3795	
TULLY	2190-	2166-	2168-		2386-	2704-	2300-	2269-	2222-	1377-
ONONDAGA LIMESTONE CHERT	2388-	2358-	2362-	2436-	2576-	2886-	2494-	2494-	2444-	1584-
ORISKANY		2571-	2604-			3164-	2660-		2694-	1849-
HELDERBERG KEYSER-BASS ISLANDS	2640-	2577-	2618-	2660-	2779-	3226-	-2772	2740-	2703-	
SALINA GUELPH-LOCKPORT	2720- 3310-	2646- 3250-	2688- 3257-	2728- 3304-	2868- 3456-	3416-	2772-	2820- 3350-	2782- 3335-	1988- 2414-
CLINTON IRONDEQUOIT	3550- 3606-	3486- 3557-	3496- 3570-	3591- 3642-	3705- 3780-	4108-	3628-	3566- 3674-	3596- 3656-	2670- 2726-
MEDINA GRIMSBY WHIRLPOOL	3644- 3694-	3593- 3633- 3759-	3606- 3648- 3774-	3681- 3702- 3849-	3816- 3834- 3986-	4203-	3721-	3694- 3704- 3872-	3678- 3686- 3850-	2750- 2914-
QUEENSTON		3768-	3782-	3855-	3994-	4406-	3896-	3882-	3859-	2924-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3694-3750	3637-3676	3652-3729	3702-3762	3870-3912	4259-4399	3747-3895	3779-3877	3727-3795	2766-2922
TOTAL DEPTH	3850	3875	3909	3934	4051	4460	3983	3939	3928	3000
DEEPEST FORMATION REACHED	Medina	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,174 Mcf AF 875 psi/48 hrs. development Indian Springs pool Conneaut field	605 Mcf AF 850 psi/48 hrs. development Indian Springs pool Conneaut field	1,770 Mcf AF 880 psi/48 hrs. development Pageville pool Conneaut field	725 Mcf AF 1,100 psi/48 hrs. development Indian Springs pool Conneaut field	248 Mcf AF 1,150 psi/48 hrs. development Indian Springs pool Conneaut field	1,400 Mcf AF 980 psi/72 hrs. extension Kastle pool Conneaut field	326 Mcf AF 1,750 psi/48 hrs. development Indian Springs pool Conneaut field	1,000 Mcf AF 1,140 psi/2 days development Waterford pool LeBoeuf field	200 Mcf Nat. 2,500 Mcf AF 1,200 psi/2 days development Waterford pool LeBoeuf field	59 Mcf AF development Fairview pool Erie field

COUNTY Permit Number	Erie 20770	Erie 20845	Erie 20952	Erie 20959	Erie 20973	Erie 21019	Erie 21028	Erie 21058	Erie 21141	Erie 21165
NAME OF WELL	Stanley Beezub #1	Presque Isle State Park #1	Shavers #1	Robert J. Stearns #1	Harold Adams Farm #1	Robert M. Tracy #2	Lloyd Meerdink #1	Janet M. Craig #2	W. Kozik #1	Belovarac-Carullo Unit #1
OPERATOR	N.E.A. Cross Company	PA Dept. of Environmental Res.	U. S. Energy Corporation	National Fuel Gas Supply #6231	C & C Troyer Brothers #21	Mutual Oil & Gas Company #M-5-P	Appalachian Energy Inc. #AE-57	Northwest Natural Gas Company	C & C Troyer Brothers #29	Mutual Oil & Gas Company #M-18-P
TOWNSHIP	LeBoeuf	Millcreek	Concord	Greenfield	Washington	McKean	Wayne	Conneaut	Union	McKean
QUADRANGLE	Waterford	Erie North	Spartansburg	North East	Cambridge Springs NE	Cambridge Springs NE	Corry	Conneautville	Union City	Cambridge Springs NE
LATITUDE	15,050 ft. S 41°57'30"	4,830 ft. S 42°10'00"	700 ft. S 41°52'30"	8,260 ft. S 42°10'00"	10,750 ft. S 41°55'00"	12,300 ft. S 42°00'00"	8,810 ft. S 41°57'30"	3,600 ft. S 41°52'30"	12,850 ft. S 41°57'30"	12,000 ft. S 42°00'00"
LONGITUDE	1,350 ft. W 79°55'00"	530 ft. W 80°07'30"	8,000 ft. W 79°42'30"	4,800 ft. W 79°50'00"	4,300 ft. W 80°05'00"	10,400 ft. W 80°05'00"	7,360 ft. W 79°40'00"	7,150 ft. W 80°20'00"	6,100 ft. W 79°45'00"	8,000 ft. W 80°05'00"
DATE COMPLETED	4-24-79	10-10-79	11-20-80	2-22-80	3-15-80	6-25-80	7-13-80	7-17-80	9-25-80	10-7-80
ELEVATION	1320 GR	574 GR	1400 GR	1406 GR	1435 GR	1380 GR	1721 GR	1055 GR	1610 GR	1360 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2350-4023	FOC/CNL/GR: 50-1274 T: 290-1236 DBC/SON 300-1266 OIL: 310-1266	GRN: 4200-4513	FOC/GR: 0-3629 SNP/GR 377-3635 OIL: 377-3629 T: 297-3635	GR/PER: 3800-4187	GR/FDC: 2250-3888	GRN: 0-4585 CBL/SS: 3500-4580			GR: 2200-3918
TULLY	2384-	1040-		2041-		2278-	2986-	2030-	2856-	2272-
ONONDAGA LIMESTONE CHERT	2610-	1248-		2266-		2512-	3240-	2202-	3098-	2496-
ORISKANY										
HELDERBERG KEYSER-BASS ISLANDS	2854-			2503-		2798-	3439-	2454-		2756-
SALINA GUELPH-LOCKPORT	2932- 3434-			2600- 2990-		2881- 3338-	3492- 4044-	2531- 3059-		2867- 3302-
CLINTON IRONDEQUOIT	3676- 3794-		4228-	3210- 3306-	3842- 3923-	3582- 3645-	4242- 4366-	3297-	4243-	3574- 3631-
MEDINA GRIMSBY WHIRLPOOL	3816- 3823- 3990-		4250- 4262- 4430-	3329- 3335- 3486-	3958- 3986- 4123-	3685- 3720- 3836-	4389- 4391- 4561-	3425-	4270- 4440-	3672- 3718- 3825-
QUEENSTON	4001-		4445-	3500-	4131-	3846-	4571-		4456-	3834-
PRODUCING FORMATION	Medina	Devonian Shale	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3866-3996	400-553	4353-4441		3988-4036	3721-3755	4491-4580		4329-4397	3687-3740
TOTAL DEPTH	4023	1275	4520	3635	4198	3900	4618	3530	4498	3929
DEEPEST FORMATION REACHED	Queenston	Onondaga	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	200 Mcf AF 1,000 psi/2 days development Waterford pool LeBoeuf field	100 Mcf Nat. 174 psi/90 days extension Erie shallow pool Erie field	10 Mcf AF 900 psi/? hrs. non-commercial development Harbor Ridge pool Concord field	24 Mcf AF development Burgess pool Conneaut field	IP not available RP not available development Edinboro field	26 Mcf Nat. 1,025 psi/48 hrs. development Reeds Corners field	100 Mcf AF 800 psi/? hrs. development Spencer Creek pool Corry field	850 Mcf AF 1,000 psi/48 hrs. development Lundys Lane pool Conneaut field	4,100 Mcf AF 1,224 psi/5 days development Tarbell pool Corry field	58 Mcf Nat. Plugged and abandoned development Reeds Corners field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21168	Erie 21182	Erie 21189	Erie 21234	Erie 21241	Erie 21308	Erie 21322	Erie 21327	Erie 21371	Erie 21372
NAME OF WELL	North East Industrial Park #1	B. Lewis #1	Robert & Barbara Rindfuss #1	Yovich #1	George Ludzik #1	H. Adams #2	J. Hipps #1	Gem City Gun Club Unit #1	Daniel Troyer et ux #1	Halmi #1
OPERATOR	North East Industrial Fuel Co.	Envirogas Incorporated	Rindfuss Well Drilling	N.E.A. Cross Company	Mutual Oil & Gas Company #M-24-P	C & C Troyer Brothers #35	Envirogas Incorporated	Berea Oil & Gas Corporation	Meridian Exploration #581	C & C Troyer Brothers #37
TOWNSHIP	North East	Greenfield	LeBoeuf	LeBoeuf	McKean	Washington	Greenfield	Harborcreek	LeBoeuf	Washington
QUADRANGLE	North East	North East	Waterford	Miller Station	Cambridge Springs NE	Cambridge Springs NE	North East	Hammett	Waterford	Cambridge Springs NE
LATITUDE	14,350 ft. S 42°15'00"	10,600 ft. S 42°10'00"	10,800 ft. S 41°55'00"	1,250 ft. S 41°52'30"	7,100 ft. S 42°00'00"	10,900 ft. S 41°55'00"	10,650 ft. S 42°10'00"	7,500 ft. S 42°07'30"	1,800 ft. S 41°55'00"	5,700 ft. S 41°55'00"
LONGITUDE	10,050 ft. W 79°47'30"	8,600 ft. W 79°45'00"	9,200 ft. W 79°57'30"	11,150 ft. W 79°52'30"	1,950 ft. W 80°05'00"	6,000 ft. W 80°05'00"	1,050 ft. W 79°47'30"	8,180 ft. W 79°52'30"	4,600 ft. W 79°52'30"	7,200 ft. W 80°05'00"
DATE COMPLETED	11-8-80	10-10-81	5-7-82	11-13-80	12-31-80	5-27-81	9-26-81	3-5-82	5-9-81	5-27-81
ELEVATION	820 GR	1380 GR	1165	1490 GR	1415 GR	1350 GR	1385 GR	1242 GR	1320 GR	1330 GR
LOGS RECEIVED AND LOGGED INTERVALS				GR: 2700-4431	GR/FDC: 2200-3938	FDC/LL/GR: 2400-4136			FDC/GR: 0-4154 OIL: 2130-4146 CCL/PR: 3950-4086 PDC: 3834-4100	FDC/LL/GR: 2350-4073
TULLY	1275-	2015-	2353-	2744-	2254-	2428-	2038-	1924-	2452-	2380-
ONONDAGA LIMESTONE CHERT	1495-	2257- 2455-	2555-	2972-	2491-	2640-	2279-	2156-	2686-	2590-
ORISKANY								2350-		
HELDERBERG KEYSER-BASS ISLANDS		2497-		3194-	2704-	2902-	2516-	2400-	2912-	2868-
SALINA GUELPH-LOCKPORT	1795-	2601- 2983-	2888-	3278- 3850-	2878- 3290-	2968- 3447-	2629- 2999-	2478- 2904-	2986- 3555-	2938- 3230-
CLINTON IRONDEQUOIT	2520-	3250- 3297-		4112- 4170-	3575- 3638-	3792- 3844-	3257- 3309-	3150- 3216-	3815- 3880-	3715- 3790-
MEDINA GRIMSBY WHIRLPOOL	2580- 2691-	3331- 3469-	3775-	4208- 4241- 4371-	3672- 3700- 3829-	3880- 3935- 4043-	3345- 3487-	3264- 3392-	3913- 3949- 4076-	3814- 3840- 3979-
QUEENSTON	2706-	3488-	3892-	4382-	3840-	4050-	3507-	3414-	4088	3984-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Devonian shale	Medina
PRODUCING INTERVAL	2660-2702	3350-3484	3805-3851	4245-4320	3702-3769	3924-3952	3373-3501	3402-3410	3950-4086	3842-3878
TOTAL DEPTH	2857	3568	3892	4437	3946	4183	3580	3519	4157	4066
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	900 Mcf AF 750 psi/168 hrs. Orchard Beach pool North East field	700 Mcf AF 1,005 psi/10 days development Bull Reservoir pool North East field	500 Mcf AF 700 psi/48 hrs. development Mill Village field	100 Mcf AF 1,180 psi/30 days development New Ireland field	Plugged and abandoned development Reeds Corners field	500 Mcf AF 1,180 psi/7 days development Edinboro field	1,000 Mcf AF 1,015 psi/10 days development Bull Reservoir pool North East field	1,500 Mcf AF 1,200 psi/72 hrs. development Hornby pool North East field	680 Mcf Nat. 320 psi/7 days Shallower pool discovery Troyer pool LeBoeuf field	3,000 Mcf AF 1,180 psi/7 days development Edinboro field

COUNTY Permit Number	Erie 21374	Erie 21404	Erie 21406	Erie 21410	Erie 21412	Erie 21413	Erie 21420	Erie 21425	Erie 21426	Erie 21429
NAME OF WELL	T. Miller #1	Chylinski #1	Edward Chylinski #3	Gerald Orton #2	Edward Zajac #1	E. Zajac	D. Laird & M. Peck #1	Edward Stafford #1	Charles B. Austin #2	Joseph & Josephine Glavic #2
OPERATOR	C & C Troyer Brothers #38	Kaltsas Oil Company	Kaltsas Oil Company	Kaltsas Oil Company	Kaltsas Oil Company	Kaltsas Oil Company	C & C Troyer Brothers #41	C & C Troyer Brothers #43	C & C Troyer Brothers #42	Northwest Natural Gas Company
TOWNSHIP	Washington	Greenfield	Greenfield	Venango	Venango	Venango	Washington	Washington	Washington	Elk Creek
QUADRANGLE	Cambridge Springs NE	Hammett	Wattsburg	Hammett	Hammett	Hammett	Cambridge Springs NE	Cambridge Springs NE	Cambridge Springs NE	Conneautville
LATITUDE	6,200 ft. S 41°55'00"	9,900 ft. S 42°07'30"	11,450 ft. S 42°07'30"	2,520 ft. S 42°05'00"	5,300 ft. S 42°05'00"	3,700 ft. S 42°05'00"	4,750 ft. S 41°55'00"	11,250 ft. S 41°57'30"	9,600 ft. S 41°55'00"	2,000 ft. S 41°52'30"
LONGITUDE	8,150 ft. W 80°02'30"	1,650 ft. W 79°52'30"	7,250 ft. W 79°50'00"	3,250 ft. W 79°52'30"	1,750 ft. W 79°52'30"	1,800 ft. W 79°52'30"	1,500 ft. W 80°05'00"	10,800 ft. W 80°02'30"	3,900 ft. W 80°05'00"	3,800 ft. W 80°20'00"
DATE COMPLETED	6-19-81	10-20-81	10-8-81	10-6-81	10-13-81	10-15-81	6-25-81	7-11-81	7-1-81	10-20-81
ELEVATION	1370 GR	1464 GR	1410 GR	1440 GR	1381 GR	1398 GR	1510 GR	1315 GR	1460 GR	1070 GR
LOGS RECEIVED AND LOGGED INTERVALS		DBC/ENP/GR: 13-3708	DBC/ENP/GR: 0-3660	DBC/GR/ENP:1960-3738	DBC/GR/ENP: 0-3688	DBC/ENP/GR: 0-3697	CDL/GR: 2500-4230	FDC/GR: 2250-3971	FDC/GR: 2323-4251 Laser: 3992-4252	GR: 1900-3562
TULLY	2420-	2166-	2150-	2218-	2164-	2180-	2564-	2318-	2546-	1979-
ONONDAGA LIMESTONE CHERT	2640-	2404-	2381-	2448-	2400-	2408-	2730-	2532-	2759-	2158-
ORISKANY		2652-				2636-				2412-
HELDERBERG KEYSER-BASS ISLANDS		2658-	3616-	2677-	2616-	2641-	3052-	2806-	3020-	2420-
SALINA GUELPH-LOCKPORT		2734- 3144-	2687- 3100-	2750- 3180-	2702- 3130-	2708- 3160-	3114- 3710-	2871- 3376-	3088- 3644-	2497- 3048-
CLINTON IRONDEQUOIT	3818-	3396- 3450-	3349- 3403-	3406- 3472-	3364- 3428-	3372- 3439-	3893- 3958-	3626- 3688-	3908- 3960-	3246- 3361-
MEDINA GRIMSBY WHIRLPOOL	3848- 4014-	3480- 3510- 3630-	3424- 3431- 3582-	3512- 3538- 3656-	3459- 3502- 3610-	3474- 3498- 3624-	3980- 3988- 4154-	3714- 3722- 3880-	3982- 3991- 4156-	3385- 3388- 3502-
QUEENSTON	4022-	3642-	3596-	3666-	3609-	3632-	4162-	3891-	4165-	3506-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3887-3923	3560-3654	3468-3595	3541-3663	3526-3617	3507-3630	4028-4065	3751-3804	4032-4080	3472-3530
TOTAL DEPTH	4116	3710	3668	3738	3688	3697	4237	3978	4252	3570
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	500 Mcf AF 1,150 psi/7 days development Edinboro North field	950 Mcf AF 1,020 psi/5 days development Hornby pool North East field	930 Mcf AF 980 psi/4 days development Hornby pool North East field	1,500 Mcf AF 970 psi/6 days development Hornby pool North East field	900 Mcf AF 1,000 psi/5 days development Hornby pool North East field	2,000 Mcf AF 1,170 psi/5 days development Hornby pool North East field	1,500 Mcf AF 1,170 psi/7 days development Edinboro North field	500 Mcf AF 1,150 psi/7 days development Edinboro North field	3,200 Mcf AF 1,180 psi/2 days development Edinboro field	950 Mcf AF 1,110 psi/48 hr development Lundys Lan po Conneau field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21433	Erie 21438	Erie 21447	Erie 21451	Erie 21455	Erie 21458	Erie 21462	Erie 21465	Erie 21476	Erie 21477
NAME OF WELL	Lantz #1	John & Eva Fleisch #1	Conneaut Valley Farms #2	Forest E. Hulings #1	G. Post #2	R. Walker #1	M. Kovach #1	Ned Bishop #1	Mountain #1	Dorrance Mook #1
OPERATOR	U. S. Energy Development Corp.	Northwest Natural Gas Company	Goe Pro, Inc.	C & C Troyer Brothers #44	Envirogas, Incorporated	C & C Troyer Brothers #45	Envirogas, Incorporated	Goe Pro, Inc.	Vineyard Oil & Gas Company	Goe Pro, Inc.
TOWNSHIP	Venango	Conneaut	Conneaut	Washington	Greenfield	Washington	Greenfield	Conneaut	Venango	Elk Creek
QUADRANGLE	Wattsburg	Conneautville	Beaver Center	Edinboro North	Wattsburg	Cambridge Springs NE	North East	East Springfield	Wattsburg	Conneautville
LATITUDE	10,050 ft. S 42°02'30"	3,700 ft. S 41°52'30"	5,900 ft. S 41°52'30"	10,600 ft. S 41°57'30"	500 ft. S 42°07'30"	14,200 ft. S 41°57'30"	9,250 ft. S 42°10'00"	15,000 ft. S 41°55'00"	400 ft. S 42°02'30"	1,300 ft. S 41°52'30"
LONGITUDE	7,950 ft. W 79°45'00"	8,900 ft. W 80°20'00"	50 ft. W 80°25'00"	2,100 ft. W 80°07'30"	6,950 ft. W 79°45'00"	8,000 ft. W 80°05'00"	2,350 ft. W 79°47'30"	6,750 ft. W 80°22'30"	6,500 ft. W 79°50'00"	4,850 ft. W 80°15'00"
DATE COMPLETED	1-30-82	9-11-81	11-18-81	8-12-81	6-19-82	7-11-81	10-24-81	10-29-81	9-21-81	10-14-81
ELEVATION	1410 GR	1040 GR	862 GR	1260 GR	1370 GR	1390 GR	1450 GR	847 GR	1510 GR	1236 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNP/GR: 2000-4038 LL/GR: 2000-4035 Laser: 2140-4000	GR: 1950-3598		FDC/LL/GR: 2200-3891		FDC/GR/LL: 2300-4075			FDC/SNP/GR: 257-3923 LL/GR: 3167-3923 Laser: 3728-3876	
TULLY	2278-	1994-	1284-	2215-	2046-	2386-	2105-		2341-	
ONONDAGA LIMESTONE CHERT	2505-	2168-	1950-	2424-	2283-	2594-	2341-	1890-	2566-	
ORISKANY	2709-		2200-					2128-		
HELDERBERG KEYSER-BASS ISLANDS	2721-	2424-	2206-	2700-	2532-	2870-	2610-		2801-	
SALINA GUELPH-LOCKPORT	2864- 3424-	2504- 3034-	2550- 2814-	2762- 3290-	2650- 3014-	2943- 3434-	2720- 3075-	2490- 2706-	2877- 3372-	
CLINTON IRONDEQUOIT	3633- 3793-	3310- 3378-	3095- 3154-	3530- 3588-	3276- 3332-	3707- 3768-	3335- 3390-	3104-	3577- 3682-	3546-
MEDINA GRIMSBY WHIRLPOOL	3715- 3722- 3929-	3416- 3456-	3200-	3614- 3621- 3774-	3366- 3509-	3791- 3799- 3964-	3422- 3563-	3154- 3292-	3703- 3709- 3862-	3592- 3735-
QUEENSTON	3941-		3370-	3789-	3529-	3973-	3582-	3310-	3876-	3750-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3804-3934	3456-3492	3210-3273	3649-3700	3393-3524	3834-3907	3447-3578	3166-3218	3742-3873	3604-3658
TOTAL DEPTH	4032	3590	3390	3898	3671	4082	3672	3360	3914	3780
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,600 Mcf AF 840 psi/72 hrs. development Carter Hill field	1,100 Mcf AF 1,110 psi/2 days development Lundys Lane pool Conneaut field	300 Mcf AF 950 psi/24 hrs. development Bushnell-Lexington pool Conneaut field	1,000 Mcf AF 1,140 psi/7 days extension Edinboro field	1,000 Mcf AF 1,035 psi/240 hrs. development Bull Reservoir pool North East field	1,200 Mcf AF 1,170 psi/7 days development Edinboro field	300 Mcf AF 1,030 psi/10 days development Bull Reservoir pool North East field	300 Mcf AF 950 psi/24 hrs. development Bushnell-Lexington pool Conneaut field	IP not reported 1,050 psi/72 hrs. extension Dennee pool Phillipsville field	750 Mcf AF 1,000 psi/24 hrs. development Pageville pool Conneaut field

COUNTY Permit Number	Erie 21479	Erie 21481	Erie 21483	Erie 21486	Erie 21489	Erie 21490	Erie 21491	Erie 21495	Erie 21496	Erie 21504
NAME OF WELL	Eldon H. & Naomi Huston #1	Harrison H. & Alice Beavers #1	R. Bernritter #1	Charles Lupka #1	Glenn V. Troyer #1	Leonard Krzywicki #1	Calvin I. & E. Elaine Niemeyer #1	J. Carniewski #1	K. Griffith #1	F. S. Patalon #1
OPERATOR	Clarence K. Tussel, Jr.	NRM Petroleum Corporation #9548	Envirogas, Incorporated	Goe Pro, Inc.	Glenn V. Troyer Company	C & C Troyer Brothers #47	NRM Petroleum Corporation #9549	Envirogas, Incorporated	Envirogas, Incorporated	Kaltsas Oil Company
TOWNSHIP	Conneaut	Waterford	Waterford	Elk Creek	LeBoeuf	Washington	Waterford	Waterford	Waterford	Venango
QUADRANGLE	Pierpont	Waterford	Waterford	Edinboro South	Waterford	Cambridge Springs NE	Waterford	Waterford	Waterford	Wattsburg
LATITUDE	6,650 ft. S 41°52'30"	5,080 ft. S 41°57'30"	7,250 ft. S 41°57'30"	5,000 ft. S 41°52'30"	8,200 ft. S 41°55'00"	8,200 ft. S 41°55'00"	7,300 ft. S 41°57'30"	7,150 ft. S 42°00'00"	2,900 ft. S 41°57'30"	14,890 ft. S 42°07'30"
LONGITUDE	3,550 ft. W 80°30'00"	6,400 ft. W 79°55'00"	11,250 ft. W 79°52'30"	10,620 ft. W 80°12'30"	7,750 ft. W 79°57'30"	250 ft. W 80°05'00"	4,100 ft. W 79°57'30"	10,150 ft. W 79°52'30"	7,300 ft. W 79°52'30"	9,050 ft. W 79°50'00"
DATE COMPLETED	9-22-81	8-8-81	10-13-81	10-25-81	8-9-81	8-5-81	8-18-81	10-19-81	9-10-81	10-22-81
ELEVATION	971 GR	1428 GR	1350 GR	1275 GR	1180 GR	1460 GR	1170 GR	1540 GR	1290 GR	1420 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 250-3474	FDC/SNP: 2138-4178 LL: 2137-4178	FOC/GR: 0-4096 OLL: 2020-4084		FOC/LL: 2300-4030 PCL: 3806-3850	FDC/LL/GR: 2500-4261	FOC: 1857-3893 GR/LL: 1894-3889	FOC/GR: 302-4127 OLL: 2116-4116	FOC/GR: 304-3976 OLL: 1950-3960	OBC/ENP/GR: 0-3707
TULLY		2399-	2374-		2320-	2554-	2097-	2413-	2289-	2192-
ONONDAGA LIMESTONE CHERT	1988-	2620-	2608-		2540-	2770-	2319-	2645-	2520-	2419-
ORISKANY	2172-									
HELDERBERG KEYSER-BASS ISLANDS	2183- 2234-	2864-	2845-		2803-	3029-	2598-	2885-	2745-	2658-
SALINA GUELPH-LOCKPORT	2357- 2890-	2964- 3520-	2922- 3472-	3350-	2862- 3366-	3095- 3670-	2688- 3220-	2980- 3520-	2831- 3394-	2728- 3170-
CLINTON IRONDEQUOIT	3152- 3218-	3781- 3832-	3708- 3788-	3687-	3592- 3706-	3895- 3954-	3496- 3553-	3773- 3831-	3647- 3703-	3380- 3446-
MEDINA GRIMSBY WHIRLPOOL	3253- 3300- 3414-	3856- 3891- 4029-	3810- 3819- 3984-	3736- 3886-	3729- 3736- 3905-	3976- 3983- 4154-	3575- 3609- 3745-	3852- 3861- 4023-	3774- 3782- 3898-	3468- 3474- 3626-
QUEENSTON	3424-	4039-	3994-	3896-	3916-	4164-	3756-	4031-	3908-	3639-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3302-3362	3863-4037	3858-3992	3770-3804	3804-3854	4018-4057	3675-3787	3897-4028	3770-3902	3505-3637
TOTAL DEPTH	3424	4040	4098	3919	4037	4270	3880	4130	3976	3710
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	960 Mcf AF 1,125 psi/36 hrs. development Bushnell-Lexington pool Conneaut field	539 Mcf AF 1,200 psi/4 hrs. development Waterford pool LeBoeuf field	400 Mcf AF 1,090 psi/10 days development Waterford pool LeBoeuf field	850 Mcf AF 1,100 psi/1 day development Pageville pool Conneaut field	500 Mcf AF 1,180 psi/72 hrs. development Mill Village field	3,500 Mcf AF 1,160 psi/7 days development Edinboro North field	1,300 Mcf AF 1,150 psi/4 hrs. development Waterford pool LeBoeuf field	3,000 Mcf AF 1,120 si/10 days development Waterford pool LeBoeuf field	4,450 Mcf AF 1,130 psi/10 days development Waterford pool LeBoeuf field	1,200 Mcf AF 950 psi/4 days development Hornby pool North East field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21507	Erie 21508	Erie 21510	Erie 21511	Erie 21512	Erie 21514	Erie 21515	Erie 21516	Erie 21517	Erie 21518
NAME OF WELL	Clarence & Helen Boyd #4	Thoma. Mannarelli #2	Raymond T. Lyons #1	Arthur Foy #1	William Smith #1	G. W. Swift #1	Rudolph Vanco #1	Rudolph Vanco #1	Rudolph Vanco #3	Dale Harned-Clifford Allen #1
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	Cardinal Oil Company #52	Cardinal Oil Company #51	Cardinal Oil Company #46	Cardinal Oil Company #48	Cardinal Oil Company #43	Cardinal Oil Company #44	Cardinal Oil Company #45	Cardinal Oil Company #57
TOWNSHIP	LeBoeuf	LeBoeuf	Elk Creek	Franklin	Franklin	Franklin	Franklin	Franklin	Franklin	Elk Creek
QUADRANGLE	Waterford	Waterford	Conneautville	Edinboro North	Edinboro North	Edinboro North	Edinboro North	Edinboro North	Edinboro North	Edinboro North
LATITUDE	7,600 ft. S 41°55'00"	9,600 ft. S 41°55'00"	7,180 ft. S 41°52'30"	1,100 ft. S 41°55'00"	4,300 ft. S 41°55'00"	13,000 ft. S 41°55'00"	13,100 ft. S 41°55'00"	7,500 ft. S 41°55'00"	5,400 ft. S 41°55'00"	13,040 ft. S 41°55'00"
LONGITUDE	7,700 ft. W 79°55'00"	2,700 ft. W 79°55'00"	10,220 ft. W 80°15'00"	9,820 ft. W 80°10'00"	3,400 ft. W 80°10'00"	10,400 ft. W 80°10'00"	6,180 ft. W 80°10'00"	4,740 ft. W 80°10'00"	4,740 ft. W 80°10'00"	1,150 ft. W 80°12'30"
DATE COMPLETED	8-15-81	8-21-81	9-9-81	10-18-81	10-4-81	10-19-81	10-13-81	10-7-81	10-3-81	10-24-81
ELEVATION	1220 GR	1310 GR	1200 GR	1315 GR	1302 GR	1352 GR	1460 GR	1395 GR	1335 GR	1358 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR. 2350-4090	FDC/GR 2450-4208	FDC/GR/CAL:2150-3862	FDC/GR/CAL:2300-3926		FDC/GR/CAL:2300-4032	FDC/SNP/GR:2407-3990	FDC/GR/CAL·2350-4026		FDC/GR/CAL:2300-3958
TULLY	2394-	2474-	2198-	2328-	2248-	2340-	2462-	2374-	2296-	2342-
ONONDAGA LIMESTONE CHERT	2617-	2704-	2398-	2464-	2454-	2538-	2668-	2580-	2502-	2544-
ORISKANY					2708-		2928-?		2751-	
HELDERBERG KEYSER-BASS ISLANDS	2871-	2948-	2640-	2740-	2760-	2795-	2937-	2836-	2806-	2800-
SALINA GUELPH-LOCKPORT	2944- 3466-	3020- 3547-	2724- 3268-	2816- 3306-	2805-	2866- 3400-	3001- 3557-	2900- 3438-	2850-	2880- 3408-
CLINTON IRONDEQUOIT	3686- 3800-	3785- 3903-	3540- 3609-	3566- 3640-	3578-	3688- 3738-	3818- 3874-	3724- 3776-	3627-	3696- 3746-
MEDINA GRIMSBY WHIRLPOOL	3823- 3836- 3999-	3927- 3933- 4100-	3644- 3673- 3811-	3682- 3696- 3836-	3685-	3771- 3824- 3934-	3908-	3810- 3836- 3970-	3731-	3780- 3823- 3944-
QUEENSTON	4008-	4115-	3820-	3846-	3861-	3944-		3980-	3905-	3952-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3891-3943	3991-4040	3692-3724	3703-3801	3717-3753	3795-3887	3934-3991	3831-3922	3746-3809	3799-3850
TOTAL DEPTH	4100	4215	3879	3942	3930	4045	4161	4038	3977	4015
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	4,000 Mcf AF 900 psi/168 hrs. development Waterford pool LeBoeuf field	2,800 Mcf AF 1,150 psi/7 hrs. development Waterford pool LeBoeuf field	756 Mcf AF 1,100 psi/1 day development Pageville pool Conneaut field	1,023 Mcf AF 1,050 psi/2 days development Franklin Center field	1,174 Mcf AF 1,100 psi/3 days development Franklin Center field	183 Mcf AF 1,000 psi/1 day development Franklin Center field	2,955 Mcf AF 1,100 psi/1 day extension Franklin Center field	1,922 Mcf AF 1,025 psi/1 day development Franklin Center field	1,813 Mcf AF 1,050 psi/1 day development Franklin Center field	4,146 Mcf AF 1,000 psi/1 day development Franklin Center field

COUNTY Permit Number	Erie 21519	Erie 21523	Erie 21525	Erie 21528	Erie 21529	Erie 21530	Erie 21531	Erie 21534	Erie 21536	Erie 21537
NAME OF WELL	Doris O. & Paul M. Wester #1	Parker #1	William A. Kaufman #1	Ferdinand C. & Gladys Billey #2	Ferdinand C. & Gladys Billey #1	J. Ernest Scott #"A" 1	J. Ernest Scott #A-2	Raymond Swift #1	J. Kibbe #1	R. Verga #1
OPERATOR	NRM Petroleum Corporation #9543	Vineyard Oil & Gas Company	Goe Pro, Inc.	NRM Petroleum Corporation #9553	NRM Petroleum Corporation #9553	NRM Petroleum Corporation #9555	NRM Petroleum Corporation #9555	Cardinal Oil Company #58	Envirogas, Incorporated	Envirogas, Incorporated
TOWNSHIP	Waterford	LeBoeuf	Elk Creek	Waterford	Waterford	Waterford	Waterford	Franklin	Waterford	Waterford
QUADRANGLE	Waterford	Waterford	Edinboro South	Waterford	Waterford	Waterford	Waterford	Edinboro North	Waterford	Waterford
LATITUDE	13,500 ft. S 41°57'30"	14,550 ft. S 41°55'00"	6,380 ft. S 41°52'30"	8,210 ft. S 41°57'30"	10,700 ft. S 41°57'30"	2,500 ft. S 41°57'30"	5,150 ft. S 41°57'30"	4,740 ft. S 41°55'00"	9,000 ft. S 42°00'00"	6,350 ft. S 41°57'30"
LONGITUDE	500 ft. W 79°55'00"	2,700 ft. W 79°55'00"	7,020 ft. W 80°12'30"	3,900 ft. W 79°55'00"	5,450 ft. W 79°55'00"	4,600 ft. W 79°55'00"	2,300 ft. W 79°55'00"	5,980 ft. W 80°10'00"	400 ft. W 79°55'00"	9,400 ft. W 79°52'30"
DATE COMPLETED	8-31-81	10-28-81	10-8-81	10-8-81	9-11-81	9-30-81	9-26-81	10-10-81	9-28-81	10-5-81
ELEVATION	1380 GR	1330 GR	1332 GR	1342 GR	1342 GR	1487 GR	1341 GR	1320 GR	1500 GR	1350 GR
LOGS RECEIVED AND LOGGED INTERVALS				FDC: 2065-4070 GR/LL: 2051-4064	FDC: 2100-4103 GR/LL: 2100-4099	FDC: 1970-4053 GR/LL: 2034-4046	FDC: 2114-4165 GR/LL: 2480-4162	FDC/SNP/GR: 0-3976	FDC/GR: 0-4094 DLL: 2070-4082	FDC/GR: 0-4085 DLL: 2050-4073
TULLY	2456-	2556-		2348-	2335-	2352-	2439-	2270-	2395-	2363-
ONONDAGA LIMESTONE CHERT	2682-	2782-	2544-	2576-	2561-	2577-	2662-	2473-	2628-	2588-
ORISKANY										
HELDERBERG KEYSER-BASS ISLANDS	2863-	3034-		2831-	2811-	2822-	2908-	2748-	2869-	2827-
SALINA GUELPH-LOCKPORT	2972- 3476-	3151- 3667-	3146- 3430-	2913- 3446-	2894- 3424-	2913- 3451-	3005- 3551-	2818- 3340-	2965- 3504-	2906- 3460-
CLINTON IRONDEQUOIT	3796-	3875- 3994-	3765-	3711- 3767-	3691- 3745-	3709- 3765-	3811- 3868-	3586- 3660-	3760- 3817-	3713- 3778-
MEDINA GRIMSBY WHIRLPOOL	3898-	4016- 4175-	3826- 3964-	3790- 3799- 3962-	3767- 3819- 3941-	3787- 3828- 3959-	3891- 3899- 4060-	3700- 3730- 3856-	3838- 3846- 4007-	3800- 384[illegible]- 3970-
QUEENSTON	4068-	4188-	3974-	3971-	3951-	3969-	4070-	3866-	4016-	3979-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3934-4063	4061-4186	3842-3877	3834-3890	3822-3948	3831-3968	3934-4063	3730-3812	3886-4014	3834-3976
TOTAL DEPTH	4188	4292	4010	4075	4096	4070	4161	3969	4097	4087
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	539 Mcf AF 1,200 psi/4 hrs. development Waterford pool LeBoeuf field	1,600 Mcf AF 1,100 psi/7 days development New Ireland field	500 Mcf AF 1,050 psi/1 day development Pageville pool Conneaut field	300 Mcf AF 975 psi/4 hrs. development Waterford pool LeBoeuf field	1,237 Mcf AF 1,125 psi/4 hrs. development Waterford pool LeBoeuf field	239 Mcf AF 950 psi/4 hrs. development Waterford pool LeBoeuf field	660 Mcf AF 1,100 psi/4 hrs. development Waterford pool LeBoeuf field	953 Mcf AF 950 psi/1 day development Franklin Center field	1,230 Mcf AF 1,095 psi/10 days extension Waterford pool LeBoeuf field	1,000 Mcf AF 1,165 psi/10 days development Waterford pool LeBoeuf field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21538	Erie 21547	Erie 21552	Erie 21554	Erie 21558	Erie 21559	Erie 21560	Erie 21562	Erie 21568	Erie 21569
NAME OF WELL	E. Weaver #1	Ronald Larson #1	I. Lewis #1	R. Lang #1	R. Parmenter #1	S. Fedele #1	H. Parkhurst #1	Dale Harned-Clifford Allen #2	James Artello Unit #1	William P. Chapman #1
OPERATOR	Envirogas, Incorporated	Cardinal Oil Company #64	Envirogas, Incorporated	Goe Pro, Inc.	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Cardinal Oil Company #61	Meridian Exploration #604	Goe Pro, Inc.
TOWNSHIP	Waterford	Washington	Greenfield	Conneaut	Greenfield	Greenfield	Greenfield	Elk Creek	Washington	Conneaut
QUADRANGLE	Waterford	Edinboro South	North East	Beaver Center	North East	North East	Wattsburg	Edinboro North	Cambridge Springs	Beaver Center
LATITUDE	4,250 ft. S 41°57'30"	8,600 ft. S 41°52'30"	11,950 ft. S 42°10'00"	6,150 ft. S 41°52'30"	6,700 ft. S 42°10'00"	8,900 ft. S 42°10'00"	500 ft. S 42°07'30"	11,960 ft. S 41°55'00"	550 ft. S 41°52'30"	3,200 ft. S 41°52'30"
LONGITUDE	10,300 ft. W 79°52'30"	3,520 ft. W 80°10'00"	10,600 ft. W 79°45'00"	4,750 ft. W 80°22'30"	3,900 ft. W 79°47'30"	8,800 ft. W 79°45'00"	10,050 ft. W 79°45'00"	2,060 ft. W 80°12'30"	200 ft. W 80°05'00"	4,900 ft. W 80°22'30"
DATE COMPLETED	9-22-81	10-25-81	10-30-81	11-3-81	9-19-81	10-4-81	11-14-81	10-21-81	11-9-81	10-23-81
ELEVATION	1335 GR	1422 GR	1440 GR	970 GR	1400 GR	1410 GR	1430 GR	1337 GR	1450 GR	950 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-4061 DLL. 2000-4038	FDC/GR/CAL:2500-4194						FDC/GR/CAL:2300-3978	DLL: 2270-4292 FDC/GR: 0-4309	
TULLY	2350-	2506-	2093-	1910-	2020-	2040-	2116-	2306-	2580-	1854-
ONONDAGA LIMESTONE CHERT	2576-	2718-	2335-	2084-	2250-	2282-	2348- 2549-	2506-	2800-	2026-
ORISKANY				2350-					Absent	2270-
HELDERBERG KEYSER-BASS ISLANDS	2814-	2968-	2577-		2525-	2544-	2630-	2764-	3060-	
SALINA GUELPH-LOCKPORT	2899- 3449-	3044- 3612-	2675- 3052-	2680-	2634- 2988-	2651- 3010-	2708- 3073-	2834- 3360-	3136- 3690-	2620- 2840-
CLINTON IRONDEQUOIT	3707- 3761-	3905- 3958-	3309-	3278-	3264- 3300-	3277- 3322-	3338- 3392-	3626- 3699-	3916- 3998-	3234-
MEDINA GRIMSBY WHIRLPOOL	3784- 3828- 3957-	3995- 4036- 4158-	3400- 3538-	3320-	3337- 3476-	3355- 3499-	3430- 3564-	3734- 3774- 3898-	4034- 4064- 4201-	3280- 3424-
QUEENSTON	3967-	4166-	3559-		3494-	3516-	3586-	3908-	4210-	3442-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3825-3964	4022-4073	3457-3553	3328-3418	3354-3490	3381-3510	3443-3580	3767-3854	4061-4125	3321-3348
TOTAL DEPTH	4063	4220	3635	3468	3581	3610	3672	3986	4312	3488
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston?	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,140 Mcf AF 1,165 psi/10 days development Waterford pool LeBoeuf field	78 Mcf AF 1,000 psi/4 days extension Cussewago field	200 Mcf AF 1,045 psi/10 days development Bull Reservoir pool North East field	250 Mcf AF 975 psi/24 hrs. development Pennside pool Conneaut field	900 Mcf AF 995 psi/10 days development Bull Reservoir pool North East field	1,000 Mcf AF 915 psi/10 days development Bull Reservoir pool North East field	400 Mcf AF 1,050 psi/10 days development Bull Reservoir pool North East field	522 Mcf AF 1,150 psi/3 days development Franklin Center field	123 Mcf AF 1,200 psi/7 days development Edinboro North field	2,000 Mcf AF 1,000 psi/24 hrs. development Bushnell-Lexington pool Conneaut field

COUNTY Permit Number	Erie 21571	Erie 21573	Erie 21575	Erie 21576	Erie 21580	Erie 21581	Erie 21584	Erie 21585	Erie 21588	Erie 21589
NAME OF WELL	Graves #1	Morris #1	Gary W. Renaud #1	R. N. Cope #1	C. Bendig #2	Gordon Ward #1	B. Lewis #2	H. Stetson #1	A. Katren #1	Peter & Gertrude Simon #1
OPERATOR	Vineyard Oil & Gas Company	NRM Petroleum Corporation #9578	4-R Investment Company	Cardinal Oil Company #67	Envirogas, Incorporated	Goe Pro, Inc.	Envirogas Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	N.E.A. Cross Company
TOWNSHIP	LeBoeuf	LeBoeuf	Edinboro	Elk Creek	Waterford	Union	Greenfield	Greenfield	Wayne	Waterford
QUADRANGLE	Waterford	Millers Station	Cambridge Springs NE	Albion	Waterford	Lake Canadohta	North East	North East	Corry	Waterford
LATITUDE	14,200 ft. S 41°55'00"	550 ft. S 41°52'30"	10,750 ft. S 41°55'00"	13,640 ft. S 41°57'30"	7,750 ft. S 42°00'00"	350 ft. S 41°52'30"	10,000 ft. S 42°10'00"	13,700 ft. S 42°10'00"	9,550 ft. S 42°00'00"	14,500 ft. S 42°00'00"
LONGITUDE	4,200 ft. W 79°55'00"	3,450 ft. W 79°55'00"	10,650 ft. W 80°05'00"	1,460 ft. W 80°20'00"	5,400 ft. W 79°52'30"	1,200 ft. W 79°47'30"	10,550 ft. W 79°45'00"	10,000 ft. W 79°45'00"	3,850 ft. W 79°37'30"	9,000 ft. W 79°57'30"
DATE COMPLETED	10-4-81	11-19-81	10-19-81	9-22-81	11-20-81	11-11-81	12-3-81	11-6-81	11-21-81	10-5-81
ELEVATION	1375 GR	1350 GR	1245 GR	940 GR	1375 GR	1516 GR	1415 GR	1375 GR	1625 GR	1205 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/SNP: 2335-4398 LL: 2300-4397 GR: 2300-4397		FDC/GR: 288-3475	FDC/GR: 305-3968 DLL: 1950-3957				FDC/GR/CAL: 0-4521 DLL: 2500-4511	FDC/GR: 1950-3801
TULLY	2588-	2604-		1746-	2282-		2069-	2046-	2790-	2027-
ONONDAGA LIMESTONE CHERT	2814-	2830-	2520-	1936-	2506-	3142-	2310-	2280-	3050-	2244-
ORISKANY				2218-						2520-
HELDERBERG KEYSER-BASS ISLANDS	3060-	3058-		2305-	2745-		2559-	2518-	3258-	2536-
SALINA GUELPH-LOCKPORT	3183- 3699-	3125- 3700-		2836-	2836- 3400-	3666- 3930-	2672- 3034-	2640- 3004-	3320- 3890-	2610- 3143-
CLINTON IRONDEQUOIT	3907- 4026-	3968- 4024-	3722-	3088- 3141-	3627- 3685-	4292-	3297- 3348-	3272- 3320-	4142- 4210-	3320- 3478-
MEDINA GRIMSBY WHIRLPOOL	4048- 4211-	4048- 4090- 4226-	3754- 3920-	3177- 3225- 3337-	3708- 3748- 3875-	4334- 4493-	3383- 3524-	3353- 3492-	4250- 4312- 4406-	3500- 3508- 3623-
QUEENSTON	4222-	4239-	3930-	3342-	3883-	4510-	3542-	3514-	4418-	3630-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4106-4218	4091-4733	3806-3842	3227-3254	3741-3881	4377-4454	3407-3537	3381-3508	4280-4415	3558-3610
TOTAL DEPTH	4293	4400	4057	3453	3971	4584	3610	3592	4524	3700
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,500 Mcf AF 1,100 psi/7 days development New Ireland field	2,768 Mcf AF 1,325 psi/4 days development New Ireland field	1,800 Mcf AF 1,150 psi/3 days development Edinboro field	588 Mcf AF 1,000 psi/24 hrs. development Bushnell-Lexington pool Conneaut field	1,000 Mcf AF 1,060 psi/10 days development Waterford pool LeBoeuf field	428 Mcf AF 1,100 psi/1 day extension Pattison pool New Ireland field	5,000 Mcf AF 925 psi/10 days development Bull Reservoir pool North East field	1,000 Mcf AF 1,010 psi/10 days development Bull Reservoir pool North East field	500 Mcf AF 1,160 psi/10 days development Brokenstraw field	1,000 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21590	Erie 21593	Erie 21594	Erie 21596	Erie 21600	Erie 21601	Erie 21603	Erie 21605	Erie 21606	Erie 21607
NAME OF WELL	Clifford W. Bloss #1	Kenneth M. McWilliams #1	Ronald J. Milne #1	Joseph & Clara Risjan #1	Frank Gulczynski #1	Frank Gulczynski #2	Severina Orton #1	Albert Kuzma #1	Patrick & Paul Luciano #1	Patrick & Paul Luciano #2
OPERATOR	NRM Petroleum Corporation #9590	NRM Petroleum Corporatin #9556	NRM Petroleum Corporation #9558	NRM Petroleum Corporation #9575	Kaltsas Oil Company	Kaltsas Oil Company	Kaltsas Oil Company	Cardinal Oil Company	Meridian Exploration #601	Meridian Exploration #602
TOWNSHIP	Union	Waterford	LeBoeuf	Waterford	Greenfield	Greenfield	Greenfield	Elk Creek	Washington	Washington
QUADRANGLE	Union City	Waterford	Millers Station	Waterford	Wattsburg	Wattsburg	Wattsburg	Albion	Cambridge Springs NE	Cambridge Springs
LATITUDE	14,200 ft. S 41°55'00"	8,100 ft. S 41°57'30"	2,600 ft. S 41°52'30"	10,050 ft. S 42°00'00"	9,960 ft. S 42°07'30"	8,600 ft. S 42°07'30"	10,000 ft. S 42°07'30"	9,180 ft. S 41°57'30"	14,500 ft. S 41°55'00"	250 ft. S 41°52'30"
LONGITUDE	1,400 ft. W 79°47'30"	6,000 ft. W 79°55'00"	600 ft. W 79°55'00"	6,800 ft. W 79°55'00"	10,000 ft. W 79°50'00"	9,920 ft. W 79°50'00"	8,500 ft. W 79°50'00"	1,020 ft. W 80°20'00"	1,200 ft. W 80°05'00"	3,500 ft. W 80°05'00"
DATE COMPLETED	10-31-81	10-14-81	10-25-81	10-20-81	11-17-81	11-21-81	11-24-81	3-18-82	11-3-81	10-28-81
ELEVATION	1455 GR	1400 GR	1483 GR	1408 GR	1518 GR	1498 GR	1460 GR	907 GR	1470 GR	1445 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/FDC: 2579-4601 LL: 4200-4598	FDC/SNP: 2098-4141 LL: 2064-4142	FDC: 2346-4351 LL: 3085-4345 GR 2346-4344	FDC: 2165-3977 LL: 2183-3974	DBC/ENP/GR: 0-3766	DBC/ENP/GR 0-3754	DBC/ENP/GR: 0-3722	FDC/GR: 100-3408	FDC/GR/CAL: 438-4309 DLL: 2298-4298 PDC: 4040-4253	FDC/GR: 0-4280 DLL: 3146-4262 PDC: 3800-4218
TULLY	2820-	2404-	2732-	2269-	2236-	2208-	2189-	1684-	2592-	2563-
ONONDAGA LIMESTONE CHERT	3074-	2626-	2956-	2493-	2475-	2444-	2426-	1872-	2810-	2776-
ORISKANY								Absent		
HELDERBERG KEYSER-BASS ISLANDS	3268-	2881-	3178-	2747-	2717-	2699-	2667-	2152-	3070-	3030-
SALINA GUELPH-LOCKPORT	3324- 3908-	2961- 3521-	3246- 3830-	2841- 3368-	2788- 3210-	2766- 3194-	2738- 3150-	2240- 2730-	3140- 3698-	3100- 3662-
CLINTON IRONDEQUOIT	4174- 4231-	3775- 3839-	4098- 4153-	3612- 3680-	3452- 3507-	3428- 3482-	3399- 3454-	2984- 3054-	3924- 4006-	3930- 3984-
MEDINA GRIMSBY WHIRLPOOL	4254- 4266- 4433-	3860- 3902- 4034-	4176- 4187- 4355-	3701- 3745- 3875-	3528- 3534- 3685-	3504- 3510- 3664-	3475- 3482- 3633-	3090- 3116- 3240-	4052- 4077- 4204-	4026- 4049- 4182-
QUEENSTON	4448-	4043-	4369-	3884-	3699-	3677-	3697-	3258-	4213-	4192-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4309-4443	3909-4040	4223-4444	3743-3880	3563-3698	3547-3675	3516-3645	3107-3168	4079-4138	4050-4100
TOTAL DEPTH	4603	4122	4510	4012	3776	3756	3722	3400	4312	4312
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	220 Mcf AF 1,075 psi/4 hrs. development Pattison pool New Ireland field	1,325 Mcf AF 1,100 psi/4 hrs. development Waterford pool LeBoeuf field	267 Mcf AF 1,100 psi/4 hrs. development New Ireland field	4,012 Mcf AF 1,150 psi/4 hrs. extension Talcott pool Erie field	900 Mcf AF 950 psi/4 days development Hornby pool North East field	1,250 Mcf AF 1,050 psi/3 days development Hornby pool North East field	500 Mcf AF 800 psi/3 days development Hornby pool North East field	1,488 Mcf AF 775 psi/2 days development Bushnell-Lexington pool Conneaut field	309 Mcf AF 1,100 psi/7 days development Edinboro North field	100 Mcf AF 1,075 psi/7 days development Edinboro field

COUNTY Permit Number	Erie 21608	Erie 21609	Erie 21615	Erie 21616	Erie 21617	Erie 21623	Erie 21624	Erie 21625	Erie 21626	Erie 21629
NAME OF WELL	Arlo S. & Vivian F. Potter #1	Arlo S. & Vivian F. Potter #4	Grover Cherry #1	Andy P. & Linda Ranayk #1	Heintz #1	O. Luhman #1	Leslie W. & Martha Robertson #1	Amos K. Flint et al #1	Wallace May #1	James Pasierb #2
OPERATOR	Northwest Natural Gas Company	Northwest Natural Gas Company	Northwest Natural Gas Company	NRM Petroleum Corporation #9586	NRM Petroleum Corporation #9595	Envirogas, Incorporated	NRM Petroleum Corporation #9574	Meridian Oil & Gas Enterprises, Inc.	Kaltsas Oil Company	Kaltsas Oil Company
TOWNSHIP	Conneaut	Conneaut	Conneaut	Union	Union	Greenfield	Waterford	Conneaut	Greenfield	Greenfield
QUADRANGLE	Beaver Center	Beaver Center	Conneautville	Union City	Union City	Wattsburg	Waterford	Beaver Center	Hammett	Wattsburg
LATITUDE	8,550 ft. S 41°52'30"	8,550 ft. S 41°52'30"	6,050 ft. S 41°52'30"	12,200 ft. S 41°55'00"	11,100 ft. S 41°55'00"	1,500 ft. S 42°07'30"	10,500 ft. S 42°00'00"	5,680 ft. S 41°52'30"	9,320 ft. S 42°07'30"	12,420 ft. S 42°07'30"
LONGITUDE	2,300 ft. W 80°22'30"	3,900 ft. W 80°22'30"	9,650 ft. W 80°20'00"	10,690 ft. W 79°47'30"	500 ft. W 79°50'00"	8,450 ft. W 79°45'00"	1,800 ft. W 79°57'30"	6,820 ft. W 80°22'30"	2,760 ft. W 79°52'30"	8,560 ft. W 79°50'00"
DATE COMPLETED	10-9-81	10-4-81	9-27-81	11-3-81	11-9-81	10-17-81	10-28-81	12-10-81	11-14-81	2-27-82
ELEVATION	1000 GR	975 GR	1050 GR	1380 GR	1362 GR	1420 GR	1340 GR	930 GR	1450 GR	1450 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 1950-3561	GR: 2000-3565	GR: 2000-3593	FDC: 2350-4413 GR/LL: 2944-4411	FDC: 2350-4374 LL: 3728-4362		FDC: 1900-3922 LL: 1895-3920	GR/FDC: 200-3458 GD: 2900-3450 R: 3200-3409	DBC/ENP/GR: 0-3696	DBC/ENP/GR: 0-3728
TULLY	1996-	1974-	2138-	2668-	2631-	2110-	2182-		2141-	2208-
ONONDAGA LIMESTONE CHERT	2168-	2175-	2210-	2904-	2868-	2343- 2539-	2405-	2026-	2375-	2439-
ORISKANY	Absent	Absent						Absent	2632-	
HELDERBERG KEYSER-BASS ISLANDS	2431-	2408-	2436-	3120-	3086-	2589-	2662-	2287-	2644-	2678-
SALINA GUELPH-LOCKPORT	2532- 3048-	2510- 2990-	2552- 3044-	3184- 3784-	3148- 3758-	2681- 3055-	2774- 3301-	2366- 2894-	2719- 3128-	2758- 3156-
CLINTON IRONDEQUOIT	3284- 3354-	3260- 3328-	3316- 3384-	4046- 4104-	3987- 4058-	3328- 3386-	3558- 3608-	3160- 3223-	3367- 3435-	3359- 3465-
MEDINA GRIMSBY WHIRLPOOL	3388- 3414-	3367- 3388-	3423- 3462- 3577-	4127- 4139- 4303-	4081- 4093- 4261-	3420- 3557-	3629- 3667- 3802-	3265- 3318-	3456- 3462- 3616-	3486- 3493- 3653-
QUEENSTON			3591-	4316-	4271-	3578-	3809-	3450-	3628-	3657-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3417-3468	3395-3446	3460-3496	4181-4298	4147-4164	3439-3574	3742-3791	3302-3340	3465-3602	3535-3594
TOTAL DEPTH	3570	3570	3630	4392	4383	3666	3909	3477	3697	3728
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,100 Mcf AF 1,030 psi/2 days development Pennside pool Conneaut field	1,200 Mcf AF 1,140 psi/2 days development Pennside pool Conneaut field	1,300 Mcf AF 1,020 psi/2 days development Lundys Lane pool Conneaut field	311 Mcf AF 975 psi/4 hrs. development Pattison pool New Ireland field	2,316 Mcf AF 1,250 psi/4 days development Pattison pool New Ireland field	700 Mcf AF 1,015 psi/10 days extension Hornby pool North East field	907 Mcf AF 1,000 psi/4 hrs. development Talcott pool Erie field	750 Mcf AF 1,050 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	1,500 Mcf AF 1,060 psi/2 days development Hornby pool North East field	900 Mcf AF 900 psi/72 hrs. development Hornby pool North East field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21633	Erie 21634	Erie 21635	Erie 21639	Erie 21643	Erie 21644	Erie 21648	Erie 21650	Erie 21651	Erie 21653
NAME OF WELL	C. Bendig #3	J. Landmesser #1	Westlake Middle School #1	W. Veihdeffer #1	Rimpa "A" #1	Robert Beck #2	O. Luhman #2	Barb Hyde #1	Richard Ohmer #1	M. Allen #3
OPERATOR	Envirogas, Incorporated	Envirogas, Incorporated	Millcreek Township School District	Envirogas, Incorporated	NRM Petroleum Corporation #9598	Vineyard Oil & Gas Company	Envirogas, Incorporated	Goe Pro, Inc.	Northwest Natural Gas Company	Envirogas, Incorporated
TOWNSHIP	Waterford	Amity	Millcreek	Greenfield	Union	Washington	Greenfield	Conneaut	Conneaut	Waterford
QUADRANGLE	Waterford	Waterford	Swanville	Wattsburg	Union City	Edinboro North	Wattsburg	East Springfield	Beaver Center	Waterford
LATITUDE	9,500 ft. S 42°00'00"	13,850 ft. S 42°00'00"	13,000 ft. S 42°07'30"	900 ft. S 42°07'30"	9,600 ft. S 41°55'00"	500 ft. S 41°55'00"	2,200 ft. S 42°07'30"	13,450 ft. S 41°55'00"	2,800 ft. S 41°52'30"	13,950 ft. S 42°00'00"
LONGITUDE	5,550 ft. W 79°52'30"	3,550 ft. W 79°52'30"	4,450 ft. W 80°10'00"	4,100 ft. W 79°45'00"	9,800 ft. W 79°50'00"	1,200 ft. W 80°07'30"	10,050 ft. W 79°45'00"	1,200 ft. W 80°22'30"	1,200 ft. W 80°22'30"	5,400 ft. W 79°52'30"
DATE COMPLETED	1-25-82	11-2-81	11-25-81	11-9-81	11-7-81	11-7-81	12-11-81	11-17-81	11-29-81	12-12-81
ELEVATION	1365 GR	1365 GR	730 GR	1460 GR	1300 GR	1250 GR	1430 GR	926 GR	995 GR	1400 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-4003 DLL: 1991-3991	FDC/GR: 338-4036 DLL: 2027-4027			FDC: 2299-4326 LL: 2997-4322	FDC/GR. 1950-3956			GR: 1850-3482	FDC/GR: 0-4074 DLL: 2067-4067
TULLY	2313-	2338-	927-	2155-	2542-	2257-	2136-		1910-	2370-
ONONDAGA LIMESTONE CHERT	2538-	2517-	1092-	2390- 2586-	2772-	2465-	2370- 2567-		2084-	2596-
ORISKANY	2781-								2338-2349	2830-
HELDERBERG KEYSER-BASS ISLANDS	2794-	2804-	1344-	2640-	3007-	2736-	2610-		2349-	2852-
SALINA GUELPH-LOCKPORT	2870- 3382-	2886- 3440-	1474- 1990-	2751- 3117-	3077- 3650-	2808- 3335-	2719- 3094-		2424- 2946-	2920- 3450-
CLINTON IRONDEQUOIT	3611- 3718-	3699- 3757-	2192- 2400-	3386- 3431-	3898- 3955-	3578- 3655-	3357- 3411-	3182-	3238- 3292-	3672- 3790-
MEDINA GRIMSBY WHIRLPOOL	3740- 3771- 3909-	3780- 3814- 3943-	2446- 2570-	3466- 3612-	3978- 3989- 4150-	3678- 3686- 3851-	3445- 3589-	3224- 3370-	3331- 3342-	3813- 3819- 3980-
QUEENSTON	3916-	3955-	2594-	3628-	4162-	3857-	3603-	3390-		3989-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3784-3913	3817-3953	2721-2570	3489-3625	4040-4109	3654-3958	3479-3600	3246-3330	3352-3407	3845-3986
TOTAL DEPTH	4006	4039	2640	3710	4333	3967	3680	3416	3510	4076
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	4,000 Mcf AF 1,085 psi/10 days development Waterford pool LeBoeuf field	3,000 Mcf AF 1,175 psi/10 days development Waterford pool LeBoeuf field	980 Mcf AF 860 psi/5 days development Charter Oaks pool Erie field	2,000 Mcf AF 1,060 psi/10 days development Bull Reservoir pool North East field	130 Mcf AF 925 psi/4 hrs. development New Ireland field	1,500 Mcf AF 1,060 psi/168 hrs. development Edinboro field	1,000 Mcf AF 1,010 psi/10 days development Bull Reservoir pool North East field	3,500 Mcf AF 950 psi/1 day development Bushnell-Lexington pool Conneaut field	1,200 Mcf AF 1,030 psi/2 days development Bushnell-Lexington pool Conneaut field	3,000 Mcf AF 1,000 psi/10 days development Waterford pool LeBoeuf field

COUNTY Permit Number	Erie 21656	Erie 21658	Erie 21659	Erie 21661	Erie 21662	Erie 21666	Erie 21674	Erie 21676	Erie 21677	Erie 21678
NAME OF WELL	J, Harnak #1	Pattison #1	Schaub #1	John Gage, Sr. #2	Darwin & Leah Cook #1	W. Heaton #1	H. Becker #1	D, Chesley #3	F. Starvaggi #1	J. Zello #2
OPERATOR	Envirogas, Incorporated	NRM Petroleum Corporation #9596	NRM Petroleum Corporation #9597	Northwest Natural Gas Company	Northwest Natural Gas Company	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas Incorporated	Envirogas, Incorporated	Envirogas, Incorporated
TOWNSHIP	Amity	Union	Union	Conneaut	Conneaut	North East	Amity	Greenfield	Greenfield	Greenfield
QUADRANGLE	Waterford	Union City	Union City	Albion	Albion	North East	Waterford	North East	Wattsburg	Wattsburg
LATITUDE	13,850 ft. S 42°00'00"	10,200 ft. S 41°55'00"	12,910 ft. S 41°55'00"	4,450 ft. S 41°55'00"	13,650 ft. S 41°55'00"	10,150 ft, S 42°12'30"	500 ft. S 41°57'30"	9,000 ft. S 42°10'00"	3,700 ft. S 42°07'30"	550 ft. S 42°07'30"
LONGITUDE	1,400 ft. W 79°52'30"	7,810 ft. W 79°47'30"	7,500 ft. W 79°47'30"	7,700 ft. W 80°20'00"	10,200 ft. W 80°20'00"	6,350 ft. W 79°45'00"	2,700 ft. W 79°52'30"	9,000 ft. W 79°47'30"	9,050 ft. W 79°45'00"	2,000 ft, W 79°47'30"
DATE COMPLETED	11-28-81	12-5-81	11-25-81	6-4-82	3-14-82	1-23-82	12-4-81	12-18-81	11-21-81	2-2-82
ELEVATION	1365 GR	1367 GR	1400 GR	900 GR	960 GR	1385 GR	1335 GR	1475 GR	1360 GR	1400 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-4033 OLL: 2020-4020	FDC/SNP: 2437-4438 IL: 2450-4430	FDC/SNP: 2459-4470 LL: 3574-4467	FDC/GR: 1800-3296	FDC/GR: 1800-3410		FDC/GR: 0-4044 OLL: 2031-4031			
TULLY	2354-	2632-	2693-	1714-	1826-	1967-	2337-	2119-	2085-	2093-
ONONDAGA LIMESTONE CHERT	2583-	2872-	2938-	1896-	1998-	2194- 2390-	2516-	2347- 2547-	2314- 2507-	2323- 2517-
ORISKANY				2102-						
HELDERBERG KEYSER-BASS ISLANDS	2822-	3090-	3142-	2112-	2248-	2434-	2802-	2591-	2554-	2562-
SALINA GUELPH-LOCKPORT	2899- 3448-	3152- 3758-	3196- 3812-	2268- 2780-	2346- 2908-	2530- 2896-	2882- 3431-	2671- 3065-	2668- 3036-	2668- 3042-
CLINTON IRONDEQUOIT	3654- 3765-	3987- 4059-	4054- 4112-	3047- 3100-	3160- 3215-	3157-	3680- 3748-	3323- 3372-	3301- 3353-	3290- 3354-
MEDINA GRIMSBY WHIRLPOOL	3788- 3796- 3954-	4082- 4094- 4255-	4134- 4146- 4312-	3142- 3174-	3252- 3281-	3234- 3379-	3796- 3810- 3936-	3411- 3544-	3386- 3529-	3386- 3528-
QUEENSTON	3966-	4270-	4325-			3395-	3945-	3565-	3547-	3548-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3857-3965	4156-4186	4190-4314	3176-3208	3283-3358	3278-3347	3811-3943	3422-3559	3403-3543	3413-3543
TOTAL DEPTH	4036	4450	4481	3360	3480	3475	4047	3655	3629	3617
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	91 Mcf AF 1,150 psi/10 days development Waterford pool LeBoeuf field	1,237 Mcf AF 1,150 psi/4 hrs. development Pattison pool New Ireland field	1,250 Mcf AF 1,000 psi/4 hrs. development Pattison pool New Ireland field	1,300 Mcf AF 1,050 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	1,100 Mcf AF 990 psi/48 hrs, development Lundys Lane pool Conneaut field	1,000 Mcf AF 890 psi/10 days development Orchard Beach pool North East field	900 Mcf AF 1,060 psi/10 days development Waterford pool LeBoeuf field	500 Mcf AF 930 psi/10 days development Bull Reservoir pool North East field	1,000 Mcf AF 1,150 psi/10 days development Bull Reservoir pool North East field	4,000 Mcf AF 910 psi/10 days development Bull Reservoir pool North East field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21679	Erie 21685	Erie 21691	Erie 21692	Erie 21694	Erie 21695	Erie 21696	Erie 21697	Erie 21698	Erie 21710
NAME OF WELL	Douglas Gibbons #1	Calvin Neimeyer #2	Chia Chang #1	Chia Chang #2	Chia Chang #4	Ralph Chamberlain #1	D. Briggs #1	G. Morris #2	G. Morris #1	Herbert Miller #2
OPERATOR	Kaltsas Oil Company	NRM Petroleum Corporation	O'Appolonia Petroleum, Inc.	O'Appolonia Petroleum, Inc.	O'Appolonia Petroleum, Inc.	Northwest Natural Gas Company	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Kaltsas Oil Company
TOWNSHIP	Greenfield	Waterford	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Amity	Amity	Amity	Greenfield
QUADRANGLE	Wattsburg	Waterford	Conneautville	Conneautville	Conneautville	Conneautville	Waterford	Union City	Waterford	Wattsburg
LATITUDE	10,100 ft. S 42°07'30"	6,450 ft. S 41°57'30"	1,300 ft. S 41°52'30"	1,400 ft. S 41°52'30"	250 ft. S 41°52'30"	5,400 ft. S 41°52'30"	6,150 ft. S 42°00'00"	7,950 ft. S 42°00'00"	7,550 ft. S 42°00'00"	7,200 ft. 42°07'30"
LONGITUDE	8,600 ft. W 79°47'30"	2,710 ft. W 79°57'30"	6,400 ft. W 80°15'00"	8,200 ft. W 80°15'00"	5,550 ft. W 80°15'00"	1,500 ft. W 80°20'00"	3,650 ft. W 79°52'30"	10,650 ft. W 79°50'00"	1,250 ft. W 79°52'30"	7,390 ft. W 79°47'30"
DATE COMPLETED	3-2-82	2-12-82	1-30-82	2-5-82	2-12-82	12-9-81	2-3-82	12-19-81	1-2-82	3-26-82
ELEVATION	1400 GR	1193 GR	1255 GR	1246 GR	1256 GR	1110 GR	1310 GR	1310 GR	1315 GR	1380 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 0-3686 IL/GR: 1900-3682	FDC/SNP: 1799-3848 LL: 2386-3844	FDC/SNL/GR: 0-3899	FDC/GR: 1880-3900	FDC/GR: 19-3892	GR: 2050-3618	FDC/GR: 0-3894 DLL: 0-3894	FDC/GR: 0-3951 DLL: 1940-3940	FDC/GR: 0-3975 DLL: 1964-3964	DBC/GR: 0-3636 IL/GR: 1940-3626
TULLY	2161-	2102-	2239-	2231-	2224-	2084-	2234-	2273-	2281-	2124-
ONONDAGA LIMESTONE CHERT	2382-	2326-	2430-	2424-	2415-	2262-	2458-	2508-	2511-	2356-
ORISKANY	2631-		2686-	2685-	2678-					2592-
HELDERBERG KEYSER-BASS ISLANDS	2648-	2595-	2699-	2692-	2690-	2512-	2701-	2739-	2748-	2620-
SALINA GUELPH-LOCKPORT	2712- 3117-	2696- 3268-	2765- 3309-	2760- 3312-	2748- 3285-	2597- 3110-	2778- 3314-	2824- 3356-	2828- 3336-	2660- 3068-
CLINTON IRONDEQUOIT	3314- 3419-	3495- 3553-	3505- 3622-	3496- 3611-	3476- 3598-	3385- 3457-	3574- 3633-	3618- 3674-	3600- 3622-	3263- 3374-
MEDINA GRIMSBY WHIRLPOOL	3442- 3446- 3598-	3572- 3615- 3747-	3646- 3653- 3824-	3635- 3642- 3813-	3622- 3628- 3793-	3489- 3528-	3655- 3662- 3820-	3708- 3749- 3860-	3695- 3703- 3861-	3396- 3403- 3554-
QUEENSTON	3614-	3756-	3828-	3818-	3799-		3829-	3870-	3871-	3568-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3500-3612	3600-3800	3673-3777	3702-3815	3660-3760	3530-3576	3696-3827	3747-3869	3737-3867	3453-3566
TOTAL DEPTH	3686	3841	3897	3902	3902	3690	3897	3978	3954	3636
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,100 Mcf AF 1,050 psi/96 hrs. development Little Hope pool North East field	2,627 Mcf AF 1,100 psi/4 hrs. development Waterford pool LeBoeuf field	210 Mcf AF 1,200 psi/5 days development Pageville pool Conneaut field	277 Mcf AF 1,275 psi/5 days development Pageville pool Conneaut field	225 Mcf AF 1,125 psi/2 days development Pageville pool Conneaut field	980 Mcf AF 1,025 psi/2 days development Lundys Lane pool Conneaut field	1,000 Mcf AF 1,055 psi/10 days development Waterford pool LeBoeuf field	2,000 Mcf AF 1,080 psi/10 days development Waterford pool LeBoeuf field	800 Mcf AF 1,085 psi/10 days development Waterford pool LeBoeuf field	1,400 Mcf AF 1,200 psi/72 hrs. development Hornby pool North East field

COUNTY Permit Number	Erie 21712	Erie 21713	Erie 21714	Erie 21716	Erie 21722	Erie 21723	Erie 21726	Erie 21728	Erie 21730	Erie 21749
NAME OF WELL	G. Gruenwald #2	D. Chesley #4	H. Hamrick #2	Rowland #2	Gustave & Pauline Welz #1	Gustave & Pauline Welz #2	H. Aylsworth #1	Tedesco #1	Joseph Wisniewski #1	Lantz #2
OPERATOR	Envirogas Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Vineyard Oil & Gas Company	Mitch-Well Energy Incorporated	Mitch-Well Energy Incorporated	Ingram Enterprises Inc. #1-81-6	Ingram Enterprises Inc. #1-81-7	Kaltsas Oil Company	U. S. Energy Development Corp.
TOWNSHIP	Greenfield	Greenfield	Greenfield	LeBoeuf	Waterford	Waterford	Franklin	Franklin	Greenfield	Venango
QUADRANGLE	North East	North East	North East	Millers Station	Cambridge Springs NE	Cambridge Springs NE	Edinboro North	Edinboro North	Wattsburg	Wattsburg
LATITUDE	7,100 ft. S 42°10'00"	8,450 ft. S 42°10'00"	5,500 ft. S 42°10'00"	250 ft. S 41°52'30"	500 ft. S 41°55'00"	14,900 ft. S 41°57'30"	3,850 ft. S 41°55'00"	11,700 ft. S 41°55'00"	3,590 ft. S 42°07'30"	11,300 ft. S 42°02'30"
LONGITUDE	250 ft. W 78°47'30"	10,800 ft. W 79°47'30"	9,300 ft. W 79°47'30"	1,600 ft. W 79°55'00"	3,200 ft. W 80°00'00"	3,850 ft. W 80°00'00"	2,900 ft. W 80°12'30"	3,000 ft. W 80°12'30"	6,400 ft. W 79°50'00"	6,250 ft. W 79°45'00"
DATE COMPLETED	2-11-82	1-3-82	1-13-82	11-20-81	2-17-82	2-11-82	1-28-82	2-4-82	4-19-82	2-9-82
ELEVATION	1440 GR	1445 GR	1490 GR	1370 GR	1300 GR	1300 GR	1300 GR	1257 GR	1452 GR	1475 GR
LOGS RECEIVED AND LOGGED INTERVALS				Laser: 4050-4335	FOC/GR: 2000-4091		FOC/GR: 300-3881	FDC/GR: 280-3798	DBC/ENP/GR: 0-3736	FOC/SNP/GR:2157-4150 LL/GR: 2253-4147 Laser: 2649-3030
TULLY	2065-	2080-	2105-		2406-		2218-	2141-	2138-	2455-
ONONDAGA LIMESTONE CHERT	2306-	2306- 2507-	2337- 2535-		2624-		2420-	2342-	2368-	2706-
ORISKANY									2621-	
HELDERBERG KEYSER-BASS ISLANDS	2553-	2552-	2586-		2878-	2610-	2626-	2624-	2644-	2950-
SALINA GUELPH-LOCKPORT	2670- 3042-	2652- 3034-	2691- 3061-		2947- 3485-	3417-	2774- 3270-	2696- 3200-	2692- 3102-	3055- 3541-
CLINTON IRONDEQUOIT	3316- 3355-	3300- 3340-	3322- 3366-	4058-	3742- 3804-	3812-	3488- 3599-	3400- 3507-	3302- 3406-	3791- 3862-
MEDINA GRIMSBY WHIRLPOOL	3389- 3528-	3377- 3513-	3413- 3540-	4095- 4126- 4258-	3865- 3870- 4004-	3830- 4000-	3623- 3630- 3797-	3530- 3536- 3704-	3428- 3434- 3583-	3885- 3890- 4050-
QUEENSTON	3594-	3538-	3560-	4272-	4012-	4011-	3803-	3711-	3597-	4061-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3416-3539	3402-3526	3455-3557	4117-4270	3879-4008	3880-4005	3652-3800	3578-3709	3589-3596	3941-4056
TOTAL DEPTH	3632	3629	3649	4435	4107	4107	3883	3800	3736	4127
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,000 Mcf AF 980 psi/10 days development Bull Reservoir pool North East field	1,000 Mcf AF 910 psi/10 days development Bull Reservoir pool North East field	1,000 Mcf AF 890 psi/10 days development Bull Reservoir pool North East field	2,000 Mcf AF 1,100 psi/5 days development New Ireland field	12,240 Mcf AF 1,180 psi/48 hrs. development Swalls pool Orumlin field	7,820 Mcf AF 1,180 psi/48 hrs. development Swalls pool Orumlin field	1,600 Mcf AF 1,060 psi/72 hrs. development Franklin Center field	100 Mcf Nat. 1,250 Mcf AF 1,030 psi/72 hrs. development Franklin Center field	200 Mcf AF 265 psi/144 hrs. development Hornby pool North East field	416 Mcf AF 800 psi/72 hrs. extension Carter Hill field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21751	Erie 21753	Erie 21754	Erie 21758	Erie 21762	Erie 21766	Erie 21772	Erie 21773	Erie 21777	Erie 21792
NAME OF WELL	Martens #4	Richard Applebee #3	James G. Hopkins #2	Joseph A. Wroblewski, Jr. #2	Meadow Brook Dairy, Inc. #1	Pattison #3	Ramey #1	J. Myers #1	Leo Gorniak #1	Jackson #1
OPERATOR	Vineyard Oil & Gas Company	Kaltsas Oil Company	Kaltsas Oil Company	Kaltsas Oil Company	Meadow Brook Dairy, Incorporated	NRM Petroleum Corporation	Ingram Enterprises #1-81-8	Envirogas, Incorporated	Kaltsas Oil Company	Ingram Enterprises Inc. #3-81-1
TOWNSHIP	Waterford	Venango	Venango	Venango	City of Erie	Union	Franklin	Waterford	Venango	Greene
QUADRANGLE	Waterford	Wattsburg	Wattsburg	Wattsburg	Erie North	Union City	Albion	Waterford	Wattsburg	Hammett
LATITUDE	14,000 ft. S 41°57'30"	160 ft. S 42°05'00"	4,050 ft. S 42°05'00"	14,920 ft. S 42°07'30"	11,150 ft. S 42°10'00"	14,300 ft. S 41°55'00"	6,310 ft. S 41°55'00"	6,800 ft. S 42°00'00"	13,620 ft. S 42°07'30"	4,060 ft. S 42°05'00"
LONGITUDE	3,050 ft. W 79°57'30"	8,900 ft. W 79°47'30"	9,750 ft. W 79°47'30"	7,650 ft. W 78°47'30"	6,200 ft. W 80°00'00"	8,250 ft. W 79°47'30"	1,380 ft. W 80°15'00"	900 ft. W 79°55'00"	6,890 ft. W 79°47'30"	2,500 ft. W 79°55'00"
DATE COMPLETED	1-6-82	4-8-82	4-22-82	4-14-82	3-15-82	12-29-81	2-19-82	1-16-82	3-23-82	3-15-82
ELEVATION	1190 GR	1440 GR	1490 GR	1445 GR	725 GR	1440 GR	1245 GR	1505 GR	1458 GR	1384 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/SNL/GR: 1479-3920 PCL: 3684-3815 IL/GR: 1500-3780 Laser: 3600-3822	OBC/EPN/GR: 7-3765	OBC/EPN/GR: 0-3832 PCL: 3640-3783	DBC/EPN/GR: 0-3795	FOC/SNL: 212-2894 LL/GR: 206-2891	FOC/SNP: 2498-4450 IL: 2533-4446	FDC/GR: 300-3794	FOC/GR: 0-4101 OLL: 1970-4080	DBC/EPN/GR: 0-3812	
TULLY	2177-	2244-	2324-	2254-	1292-	2749-	2146-	2376-	2260-	2126-
ONONDAGA LIMESTONE CHERT	2394-	2476-	2548-	2482-	1514-	2987-	2347-	2602-	2482-	2360-
ORISKANY		2705-	2774-	2722-			2614-	2847-	2723-	
HELDERBERG KEYSER-BASS ISLANDS	2663-	2722-	2784-	2733-	1776-	3189-	2626-	2852-	2735-	2594-
SALINA GUELPH-LOCKPORT	2750-	2775- 3186-	2845- 3262-	2790- 3198-	1851- 2243-	3250- 3846-	2690- 3228	2944- 3491-	2798- 3206-	2671- 3088-
CLINTON IRONDEQUOIT	3614-	3387- 3492-	3468- 3572-	3404- 3510-	2434- 2557-	4068- 4156-	3461- 3531-	3693- 3803-	3408- 3515-	3296-
MEDINA GRIMSBY WHIRLPOOL	3636- 3645- 3811-	3514- 3540- 3674-	3594- 3622- 3752-	3532- 3537- 3699-	2567- 2598- 2742-	4180- 4192- 4354-	3571- 3583- 3729-	3825- 3833- 3995-	3536- 3565- 3705-	3481-
QUEENSTON	3817-	3685-	3767-	3706-	2750-	4366-	3735-	4003-	3712-	3604-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3613-3762	3595-3684	3640-3783	3567-3706	2601-2745	4202-4314	3606-3733	3858-4001	3573-3711	3462-3597
TOTAL DEPTH	3922	3765	3833	3795	2898	4546	3777	4104	3813	3680
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,300 Mcf AF 935 psi/336 hrs. development Waterford pool LeBoeuf field	700 Mcf AF 900 psi/72 hrs. development Little Hope pool North East field	484 Mcf AF 1,020 psi/72 hrs. development Little Hope pool North East field	1,041 Mcf AF 1,065 psi/72 hrs. development Little Hope pool North East field	975 Mcf AF 800 psi/48 hrs. development Lawrence Park pool Erie field	146 Mcf AF 950 psi/4 hrs. development Pattison pool New Ireland field	1,400 Mcf AF 1,095 psi/72 hrs. development Pageville pool Conneaut field	6,000 Mcf AF 1,070 psi/10 days development Waterford pool LeBoeuf field	1,100 Mcf AF 1,050 psi/96 hrs. development Little Hope pool North East field	1,200 Mcf AF 1,075 psi/3 days development Kuhl pool North East field

COUNTY Permit Number	Erie 21793	Erie 21796	Erie 21810	Erie 21811	Erie 21815	Erie 21816	Erie 21824	Erie 21826	Erie 21827	Erie 21828
NAME OF WELL	Jackson #2	Hayes #1	Robinson #1	Arnold Bentley #1	George Petras #1	George Petras #2	K. Osborne #1	Szymanowicz #1	Pauline Graves #1	G. & E. Loomis #1
OPERATOR	Ingram Enterprises Inc. #3-81-2	U.S. Energy Development Corp.	U.S. Energy Development Corp.	Goe Pro, Incorporated	Goe Pro Incorporated	Goe Pro, Incorporated	Vineyard Oil & Gas Company	Ingram Enterprises #1-81-9	Goe Pro, Incorporated	Goe Pro, Incorporated
TOWNSHIP	Greene	Amity	Venango	Conneaut	Elk Creek	Elk Creek	Summit	Franklin	Conneaut	Conneaut
QUADRANGLE	Hammett	Union City	Union City	East Springfield	Albion	Albion	Erie South	Albion	East Springfield	East Springfield
LATITUDE	5,800 ft. S 42°05'00"	6,950 ft. S 42°00'00"	50 ft. S 42°00'00"	11,300 ft. S 41°55'00"	6,900 ft. S 41°55'00"	8,850 ft. S 41°55'00"	10,400 ft. S 42°02'30"	4,500 ft. S 41°55'00"	12,850 ft. S 41°55'00"	14,200 ft. S 41°55'00"
LONGITUDE	2,500 ft. W 79°55'00"	3,000 ft. W 79°45'00"	4,075 ft. W 79°45'00"	8,050 ft. W 80°22'30"	10,450 ft. W 80°15'00"	10,500 ft. W 80°15'00"	4,050 ft. W 80°00'00"	50 ft. W 80°15'00"	8,250 ft. W 80°22'30"	8,300 ft. W 80°22'30"
DATE COMPLETED	3-2-82	2-16-82	2-23-82	5-16-82	4-27-82	4-21-82	1-18-82	2-12-82	5-10-82	5-20-82
ELEVATION	1384 GR	1565 GR	1525 GR	840 GR	1158 GR	1159 GR	1255 GR	1250 GR	865 GR	870 GR
LOGS RECEIVED AND LOGGED INTERVALS		COL/SNL: 2231-4322 LL/GR: 2296-4318 Laser: 4050-4250	COL/SNL: 2192-4216 LL/GR: 2191-4213 Laser: 4000-4150					FOC/GR: 300-3792		
TULLY	2132-	2620-	2511-	1700-	2050-	2034-	1981-	2131-	1738-	1764-
ONONDAGA LIMESTONE CHERT	2360-	2860-	2744-	1865-	2242-	2230-	2206-	2332-	1906-	1948-
ORISKANY				2070-			2406-	2604-	2107-	2146-
HELDERBERG KEYSER-BASS ISLANDS	2598-	3080-	2982-	2080-			2462-	2617-	2118-	2156-
SALINA GUELPH-LOCKPORT	2682- 3096-	3177- 3712-	3076- 3608-	2515- 2762-	2840- 3104-	2840- 3080-	2571- 3066-	2681- 3213-	2550- 2798-	
CLINTON IRONDEQUOIT	3316-	3940- 4035-	3810- 3927-	3058- 3100-	3366- 3438-	3353- 3425-	3274- 3378-	3450- 3508-	3090- 3136-	
MEDINA GRIMSBY WHIRLPOOL	3440-	4057- 4062- 4226-	3949- 3954- 4117-	3128-	3482- 3613-	3472- 3600-	3432- 3566-	3547- 3586- 3706-	3164-	
QUEENSTON	3604-	4239-	4128-	3310-	3641-	3626-	3577-	3712-	3340-	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Bass Island?
PRODUCING INTERVAL	3475-3600	4076-4234	4010-4124	3154-3251	3475-3535	3483-3538	3437-3572	3566-3710	3182-3284	
TOTAL DEPTH	3670	4310	4193	3372	3746	3678	3686	3780	3376	2254
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Bass Island
RESULTS	800 Mcf AF 1,000 psi/3 days extension Kuhl pool North East field	1,100 Mcf AF 860 psi/72 hrs. extension Corry field	400 Mcf AF 750 psi/48 hrs. extension Carter Hill field	250 Mcf AF 975 psi/24 hrs. development Bushnell-Lexington pool Conneaut field	500 Mcf AF 1,050 psi/24 hrs. development Lundys Lane pool Conneaut field	500 Mcf AF 1,050 psi/24 hrs. development Lundys Lane pool Conneaut field	1,200 Mcf AF 950 psi/168 hrs. extension Talcott pool Erie field	1,400 Mcf AF 1,025 psi/72 hrs. extension Pageville pool Conneaut field	250 Mcf AF 1,000 psi/24 hrs. development Bushnell-Lexington pool Conneaut field	5,300 Mcf Nat. 825 psi/? hrs. Shallow pool discovery Marsh Run pool Conneaut field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21829	Erie 21831	Erie 21833	Erie 21834	Erie 21835	Erie 21837	Erie 21838	Erie 21840	Erie 21841	Erie 21844
NAME OF WELL	Ronald & Patricia Burdick #1	Donald & Patricia Kowalczyk #1	Joseph R. Lesik #1	Victor & Rose Malinowski #2	Holewski/Coon #1	Edward & Lucy Bielak #1	Byron & Rose Bowen #1	James Bennett #1	Tydings #1	Bernard Colvin #1
OPERATOR	Milch-Well Energy Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	LeBoeuf Manufacturing, Inc.	Ingram Enterprises Inc. #1-81-10	Meridian Exploration #609
TOWNSHIP	Waterford	Waterford	LeBoeuf	Waterford	LeBoeuf	LeBoeuf	LeBoeuf	LeBoeuf	Franklin	Washington
QUADRANGLE	Cambridge Springs NE	Cambridge Springs NE	Millers Station	Cambridge Springs NE	Waterford	Waterford	Waterford	Waterford	Edinboro North	Cambridge Springs NE
LATITUDE	3,000 ft. S 41°55'00"	11,250 ft. S 41°57'30"	1,600 ft. S 41°52'30"	11,500 ft. S 41°57'30"	5,150 ft. S 41°55'00"	13,600 ft. S 41°55'00"	7,600 ft. S 41°55'00"	8,950 ft. S 41°55'00"	3,300 ft. S 41°55'00"	13,200 ft. S 41°57'30"
LONGITUDE	1,850 ft. W 80°00'00"	4,550 ft. W 80°00'00"	8,550 ft. W 79°55'00"	6,150 ft. W 80°00'00"	10,200 ft. W 79°57'30"	10,200 ft. W 79°55'00"	9,500 ft. W 79°57'30"	10,950 ft. W 79°57'30"	5,150 ft. W 80°12'30"	8,750 ft. W 80°05'00"
DATE COMPLETED	3-15-82	3-17-82	3-5-82	3-11-82	2-18-82	4-16-82	2-25-82	3-3-82	2-25-82	4-29-82
ELEVATION	1300 GR	1410 GR	1385 GR	1385 GR	1320 GR	1320 GR	1185 GR	1180 GR	1300 GR	1395 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2300-4011		FOC/GR: 2800-4388			CNL/CAL/GR: 2450-4276	PCL/GR: 3836-3894	CNL/GR: 2500-4045	FOC/GR: 150-3866	FOC/GR: 0-4029 T: 559-4034 CCL/PR: 3822-3838 OLL: 3217-4021
TULLY	2322-	2416-		2408-	2460-	2511-			2180-	2380-
ONONDAGA LIMESTONE CHERT	2540-	2666-	2866-	2688-	2684-	2733-		2555-	2381-	2588-
ORISKANY	2804-					2994-		2824-		
HELDERBERG KEYSER-BASS ISLANDS	2816-		3099-			3012-		2855-	2665-	2861-
SALINA GUELPH-LOCKPORT	2868- 3416-		3154- 3734-			3059- 3577-		2888- 3420-	2732- 3252-	2928- 3432-
CLINTON IRONDEQUOIT	3691- 3753-	 3822-	3942- 4056-	 3820-	 3856-	3821- 3938-	 3744-	3634- 3742-	3447- 3561-	3704- 3757-
MEDINA GRIMSBY WHIRLPOOL	3799- 3813- 3949-	3858- 4022-	4078- 4088- 4258-	3852- 4018-	3890- 4056-	3961- 3970- 4138-	3762- 3776- 3946-	3764- 3774- 3942-	3584- 3591- 3757-	3800- 3812- 3955-
QUEENSTON	3955-	4032-	4271-	4026-	4066-	4149-	3957-	3952-	3762-	3961-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3815-3951	3893-3942	4148-4200	3896-3934	3935-4002	4032-4076	3836-3894	3948-3816	3620-3758	3822-3856
TOTAL DEPTH	4033	4110	4388	4120	4140	4283	4050	4045	3868	4050
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,400 Mcf AF 1,240 psi/48 hrs. development Mill Village field	4 Mcf AF 1,180 psi/48 hrs. extension Swails pool Orumlin field	1,600 Mcf AF 1,100 psi/48 hrs. development Mill Village field	5 Mcf AF 1,180 psi/48 hrs. extension Swails pool Orumlin field	30 Mcf AF 1,050 psi/48 hrs. development Mill Village field	6,000 Mcf AF 1,200 psi/48 hrs. development Mill Village field	3.2 Mcf AF 1,030 psi/168 hrs. non-commercial development Mill Village field	400 Mcf AF 1,200 psi/72 hrs. development Mill Village field	1,100 Mcf AF 990 psi/72 hrs. development Franklin Center field	264 Mcf AF 1,050 psi/168 hrs. development Edinboro North field

COUNTY Permit Number	Erie 21845	Erie 21847	Erie 21848	Erie 21851	Erie 21852	Erie 21853	Erie 21854	Erie 21855	Erie 21871	Erie 21872
NAME OF WELL	Harold Fellows #1	J. Byrtus #1	Christian Hostettler #1	James H. Campbell #1	Frank Foster #1	Conrad & Frances Klein #1	Louis & Ralph Bizzarro #1	Clarence W. & Luella Nitschke #1	Timothy J. McCormick #2	Valentine Ostermann #3
OPERATOR	Meridian Exploration #610	Meridian Exploration #612	Meridian Exploration #608	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	Washington	Washington	Washington	LeBoeuf	LeBoeuf	LeBoeuf	Waterford	LeBoeuf	LeBoeuf	LeBoeuf
QUADRANGLE	Cambridge Springs NE	Cambridge Springs NE	Cambridge Springs NE	Waterford	Waterford	Waterford	Waterford	Waterford	Waterford	Waterford
LATITUDE	9,500 ft. S 41°57'30"	1,000 ft. S 41°55'00"	14,100 ft. S 41°57'30"	14,100 ft. S 41°55'00"	13,700 ft. S 41°55'00"	3,000 ft. S 41°55'00"	15,100 ft. S 42°00'00"	14,500 ft. S 41°55'00"	9,800 ft. S 41°55'00"	8,250 ft. S 41°55'00"
LONGITUDE	1,250 ft. W 80°05'00"	4,700 ft. W 80°02'30"	4,900 ft. W 80°05'00"	7,700 ft. W 79°55'00"	6,250 ft. W 79°55'00"	9,350 ft. W 79°57'30"	11,300 ft. W 79°57'30"	7,150 ft. W 79°52'30"	11,200 ft. W 79°57'30"	10,900 ft. W 79°57'30"
DATE COMPLETED	5-16-82	4-27-82	4-23-82	4-1-82	4-7-82	3-3-82	3-14-82	3-2-82	3-8-82	3-10-82
ELEVATION	1345 GR	1460 GR	1520 GR	1420 GR	1390 GR	1400 GR	1380 GR	1440 GR	1210 GR	1190 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-3960 DLL: 2257-3942 CCL/PR: 0-418	FDC/GR: 0-4202 DLL: 2872-4190 PDC: 3850-4138	FDC/GR: 0-4198 DLL: 2510-4190 PDC: 3800-4177	CNL/GR: 2800-4380	FDC/LL/GR: 2580-4342	PCL: 4012-4054		FDC/GR: 2650-4417	PCL/GR: 3868-3921	
TULLY	2323-	2524-	2526-		2623-		2198-	2684-		2340-
ONONDAGA LIMESTONE CHERT	2535-	2739-	2736-	2851-	2849-		2420-	2911-		2558-
ORISKANY		3000-		3105-						
HELDERBERG KEYSER-BASS ISLANDS	2800-	3006-	3006-	3120-	3111-			3136-		
SALINA GUELPH-LOCKPORT	2864- 3384-	3074- 3583-	3074- 3606-	3165- 3744-	3169- 3732-			3209- 3789-		
CLINTON IRONDEQUOIT	3630- 3688-	3844- 3904-	3852- 3908-	3946- 4065-	3938- 4052-	3914-	3658-	4030- 4125-	3779-	3736-
MEDINA GRIMSBY WHIRLPOOL	3731- 3756- 3884-	3968- 3976- 4104-	3950- 3972- 4100-	4089- 4097- 4265-	4075- 4084- 4252-	3936- 3944- 4112-	3690- 3850-	4148- 4155- 4321-	3802- 3812- 3978-	3779- 3938
QUEENSTON	3893-	4111-	4109	4277-	4264-	4122-	3864-	4334-	3988-	3950-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3743-3827	3980-4048	3974-4024	4156-4186	4132-4176	4012-4054	3758-3800	4208-4264	3868-3921	381[illegible]
TOTAL DEPTH	3990	4211	4204	4380	4350	4210	3890	44[illegible]	4090	40[illegible]
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	252 Mcf AF 1,100 psi/168 hrs. development Reeds Corners field	512 Mcf AF 1,100 psi/7 days development Edinboro North field	110 Mcf AF 1,100 psi/7 days development Edinboro North field	3,000 Mcf AF 1,200 psi/48 hrs. development Waterford pool LeBoeuf field	500 Mcf AF 1,050 psi/48 hrs. development Waterford pool LeBoeuf field	43 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field	6,000 Mcf AF 1,160 psi/48 hrs. development Swails pool Drumlin field	500 Mcf AF 1,020 psi/48 hrs. development New Ireland field	2.7 Mcf AF 1,050 psi/48 hrs. non-commercial development Mill Village field	50 Mcf AF 1,160 psi/48 hrs. development Mill Village field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21878	Erie 21880	Erie 21882	Erie 21884	Erie 21885	Erie 21886	Erie 21888	Erie 21889	Erie 21890	Erie 21892
NAME OF WELL	B. Colvin #2	Glenn Troyer Farms #2B	Dorian & Barbara Monroe #1	Owen #1	Eugene Brooks #1	Royce Horn #1	George Miniaci #1	Hans & Mella Nathan #2	George Mitchell #3	Dominick Camp #1
OPERATOR	Meridian Exploration #607	Glenn Troyer Farms	Northwest Natural Gas Company	Robert Brace Farms	Cardinal Oil Company	Cardinal Oil Company #11	Cardinal Oil Company #8	N.E.A. Cross Company	N.E.A. Cross Company	Cardinal Oil Company #1
TOWNSHIP	Washington	LeBoeuf	Conneaut	Waterford	Elk Creek	Franklin	Franklin	Waterford	LeBoeuf	Elk Creek
QUADRANGLE	Cambridge Springs NE	Waterford	Beaver Center	Waterford	Albion	Edinboro North	Edinboro North	Erie South	Waterford	Albion
LATITUDE	12,300 ft. S 41°57'30"	7,050 ft. S 41°55'00"	4,900 ft. S 41°52'30"	1,200 ft. S 41°57'30"	11,800 ft. S 41°57'30"	6,060 ft. S 41°57'30"	8,940 ft. S 41°55'00"	14,100 ft. S 42°02'30"	13,500 ft. S 41°55'00"	12,100 ft. S 41°57'30"
LONGITUDE	10,800 ft. W 80°05'00"	11,100 ft. W 79°55'00"	2,050 ft. W 80°22'30"	7,550 ft. W 79°57'30"	2,560 ft. W 80°20'00"	10,760 ft. W 80°10'00"	10,400 ft. W 80°10'00"	10,050 ft. W 80°00'00"	8,950 ft. W 79°57'30"	1,000 ft. W 80°20'00"
DATE COMPLETED	5-8-82	3-12-82	3-21-82	5-27-82	3-11-82	5-5-82	5-22-82	3-20-82	3-17-82	4-9-82
ELEVATION	1310 GR	1180 GR	990 GR	1230 GR	913 GR	1273 GR	1367 GR	1490 GR	1160 GR	951 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-3944 DLL: 1900-3930 PDC: 3660-3924 CCL/PR 3736-3824		GR: 1900-3458		FDC/GR: 100-3384	FDC/GR: 100-3768 IL: 100-3768	GRN: 2300-3994	FDC/SNL: 2150-3964	GR: 2350-4051 FDC: 2350-4057 LL: 3350-4050	
TULLY	2290-	2356-	1932-	2075-	1704-	2116-	2338-	2249-	2363-	1722-
ONONDAGA LIMESTONE CHERT	2500-	2529-	2104-	2296-	1893-	2321-	2542-	2473-	2587-	1913-
ORISKANY			2354-		Absent					2210-
HELDERBERG KEYSER-BASS ISLANDS	2770-	2950-	2365-		2170-	2596-	2810-	2730-	2839-	
SALINA GUELPH-LOCKPORT	2837- 3354-	3178- 3368-	2444- 2970-		2260- 2750-	2682- 3210-	2881- 3402-	2834- 3332-	2902- 3438-	2366- 2878-
CLINTON IRONDEQUOIT	3600- 3666-	3654-	3241- 3296-	3528-	3014- 3083-	3398- 3505-	3636- 3746-	3538- 3655-	3650- 3761-	3038-
MEDINA GRIMSBY WHIRLPOOL	3708- 3724- 3862-	3796-	3343- 3350-	3550- 3722-	3118- 3149- 3272-	3527- 3533- 3698-	3769- 3776- 3942-	3666- 3672- 3839-	3785- 3793- 3956-	3138-
QUEENSTON	3870-	3925-		3738-	3282-	3707-	3950-	3897-	3967-	3310-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3728-3824	3922-3950	3357-3407	3620-3660	3126-3178	3563-3622	3807-3862	3730-3794	3837-3894	3159-3185
TOTAL DEPTH	3957	4020	3570	3850	3400	3787	3991	3966	4059	3390
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	175 Mcf AF 1,130 psi/7 days development Edinboro North field	2,300 Mcf AF 670 psi/? hrs. development Waterford pool LeBoeuf field	900 Mcf AF 1,050 psi/2 days development Pennside pool Conneaut field	1,750 Mcf AF 1,140 psi/168 hrs. development Waterford pool LeBoeuf field	1,813 Mcf AF 1,000 psi/2 days development Bushnell-Lexington pool Conneaut field	80 Mcf AF 900 psi/48 hrs. extension Franklin Center field	22 Mcf AF 1,050 psi/48 hrs. development Franklin Center field	200 Mcf AF 900 psi/48 hrs. extension Dunn Valley pool Erie field	500 Mcf AF 1,050 psi/48 hrs. development Mill Village field	383 Mcf AF 1,000 psi/48 hrs. development Bushnell-Lexington pool Conneaut field

COUNTY Permit Number	Erie 21893	Erie 21894	Erie 21897	Erie 21902	Erie 21904	Erie 21905	Erie 21907	Erie 21909	Erie 21915	Erie 21919
NAME OF WELL	Dominick Camp #2	Hudacky-Wadsworth #1	R. Titus #1	Marie & Donald Kreiger #1	Raymond Babbit #1	Raymond & Bertha Boyd #1	Kurtz & Barbara Fichthorn #2	Joseph & Eleanor Paczynski #1	Anna Matasowski #1	Fred Nellis #1
OPERATOR	Cardinal Oil Company #2	Cardinal Oil Company	Envirogas Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Cardinal Oil Company	Cardinal Oil Company #14
TOWNSHIP	Elk Creek	Elk Creek	Greenfield	LeBoeuf	Washington	LeBoeuf	LeBoeuf	LeBoeuf	Conneaut	Elk Creek
QUADRANGLE	Albion	Albion	North East	Waterford	Cambridge Springs NE	Waterford	Cambridge Springs NE	Millers Station	Albion	Edinboro North
LATITUDE	12,040 ft. S 41°57'30"	10,400 ft. S 41°57'30"	7,200 ft. S 42°10'00"	11,300 ft. S 41°55'00"	4,550 ft. S 41°55'00"	9,500 ft. S 41°55'00"	3,350 ft. S 41°55'00"	3,150 ft. S 41°52'30"	9,160 ft. S 41°57'30"	10,240 ft. S 41°55'00"
LONGITUDE	10,460 ft. W 80°17'30"	1,880 ft. W 80°20'00"	9,100 ft. W 79°47'30"	9,300 ft. W 79°55'00"	4,750 ft. W 80°02'30"	3,050 ft. W 79°57'30"	6,100 ft. W 80°00'00"	1,400 ft. W 79°57'30"	4,660 ft. W 80°20'00"	4,460 ft. W 80°12'30"
DATE COMPLETED	4-15-82	3-25-82	3-14-82	3-24-82	3-26-82	4-1-82	4-13-82	5-26-82	4-2-82	4-13-82
ELEVATION	983 GR	912 GR	1490 GR	1290 GR	1300 GR	1200 GR	1545 GR	1360 GR	860 GR	1310 GR
LOGS RECEIVED AND LOGGED INTERVALS		FOC/GR: 100-3344			FOC/GR: 2600-4115	FOC/LL/GR: 2350-4086 FDC/GO: 2350-4086	FOC/GR: 2600-4357	FOC/GR: 2293-4337		FOC/GR: 100-3878 IL: 100-3878 GR/PR: 3600-3878
TULLY	1778-	1690-	2124-	2490-		2394-	2620-	2572-	1632-	2250-
ONONDAGA LIMESTONE CHERT	1968-	1881-	2353-	2716-	2620-	2617-	2836-	2798-	1820-	2447-
ORISKANY	2186-	Absent							2020-	
HELDERBERG KEYSER-BASS ISLANDS		2157-	2602-		2884-	2866-	3096-	3022-		2706-
SALINA GUELPH-LOCKPORT	2328- 2830-	2242- 2774-	2708- 3080-		2966- 3468-	2940- 3442-	3166- 3722-	3086- 3661-	2182-	2784- 3332-
CLINTON IRONDEQUOIT	3096-	3001- 3068-	3317- 3383-	 3908-	3735- 3790-	3668- 3784-	3988- 4042-	3874- 3986-	2939-	3528- 3630-
MEDINA GRIMSBY WHIRLPOOL	3190-	3105- 3132- 3250-	 3420- 3555-	3940- 4108-	3838- 3848- 3990-	3806- 3814- 3982-	4084- 4105- 4238-	4010- 4018- 4189-	3032-	3653- 3658- 3828-
QUEENSTON	3362-	3267-	3578-	4118-	4000-	3992-	4248-	4201-	3206-	3836-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3218-3322	3119-3212	3462-3514	3998-4039	3870-3990	3866-3912	4126-4152	4078-4132	3065-3107	3681-3727
TOTAL DEPTH	3450	3350	3656	4229	4115	4094	4358	4300	3295	3897
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,312 Mcf AF 900 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	1,075 Mcf AF 950 psi/1 day development Bushnell-Lexington pool Conneaut field	800 Mcf AF 900 psi/240 hrs. development Bull Reservoir pool North East field	1,700 Mcf AF 1,200 psi/48 hrs. development Waterford pool LeBoeuf field	3,000 Mcf AF 1,080 psi/48 hrs. development Edinboro North field	2,800 Mcf AF 1,100 psi/48 hrs. development Mill Village field	2,800 Mcf AF 1,180 psi/48 hrs. development Mill Village field	2,200 Mcf AF 1,180 psi/48 hrs. development Mill Village field	2,522 Mcf AF 760 psi/2 days development Bushnell-Lexington pool Conneaut field	117 Mcf 1,075 psi/48 hrs. development Franklin Center field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21921	Erie 21923	Erie 21926	Erie 21928	Erie 21929	Erie 21930	Erie 21932	Erie 21936	Erie 21937	Erie 21945
NAME OF WELL	Joseph Shepegi #1	Phyllis Simpson #2	Richard Harrington #2	Howard & Dorris Proctor #1	Henry & Ethel Williams #1	Leonard Allen #4	Anne Aleksiewicz #1	Clarence Mitchell #1	Achilles C. Pulakos #1	Louie H. & Mary Kuhns #1
OPERATOR	Cardinal Oil Company #18	Goe Pro, Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas, Incorporated	Cardinal Oil Company #19	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	Franklin	Conneaut	Waterford	Waterford	LeBoeuf	Amity	Franklin	Waterford	LeBoeuf	Waterford
QUADRANGLE	Edinboro North	Beaver Center	Cambridge Springs NE	Cambridge Springs NE	Millers Station	Waterford	Edinboro North	Waterford	Waterford	Waterford
LATITUDE	2,760 ft. S 41°55'00"	3,300 ft. S 41°52'30"	14,900 ft. S 41°57'30"	1,450 ft. S 41°57'30"	1,450 ft. S 41°52'30"	12,050 ft. S 42°00'00"	2,080 ft. S 41°55'00"	3,650 ft. S 42°00'00"	5,350 ft. S 41°55'00"	5,750 ft. S 42°00'00"
LONGITUDE	4,040 ft. W 80°12'30"	1,100 ft. W 80°25'00"	5,700 ft. W 80°00'00"	8,900 ft. W 80°00'00"	4,500 ft. W 79°57'30"	750 ft. W 79°52'30"	10,200 ft. W 80°10'00"	9,600 ft. W 79°57'30"	8,100 ft. W 79°57'30"	10,750 ft. W 79°57'30"
DATE COMPLETED	4-21-82	4-27-82	4-19-82	5-10-82	6-24-82	5-22-82	5-18-82	5-17-82	4-19-82	5-24-82
ELEVATION	1312 GR	890 GR	1450 GR	1330 GR	1260 GR	1320 GR	1330 GR	1210 GR	1230 GR	1220 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 100-3844 IL/GR. 100-3844	FDC/GR: 1700-3402 GR/PER: 3050-3360	FDC/GR. 2450-4231	FDC/LL: 2250-3948	FDC/GR: 2500-4259	FDC/GR: 0-4010 DLL: 1998-3998	GRN: 2200-3874	FDC/GR: 1900-3685	FDC/LL/GR: 2350-4076	CNL/GR: 2000-3736
TULLY	2196-	1788-	2514-	2268-	2521-	2308-	2248-	1993-	2378-	2032-
ONONDAGA LIMESTONE CHERT	2400-	1954-	2730-	2490-	2740-	2537-	2449-	2219-	2595-	2254-
ORISKANY		2206-				2778-		2478-	2860-	2512-
HELDERBERG KEYSER-BASS ISLANDS	2686-	2213-	2992-	2738-	2990-	2816-	2695-	2498-	2880-	2531-
SALINA GUELPH-LOCKPORT	2760- 3264-	2299- 2856-	3061- 3576-	2832- 3308-	3052- 3618-	2860- 3398-	2756- 3265-	2583- 3097-	2923- 3433-	2626- 3136-
CLINTON IRONDEQUOIT	3464- 3573-	3112- 3165-	3858- 3916-	3564- 3618-	3824- 3947-	3601- 3715-	3474- 3580-	3294- 3410-	3661- 3770-	3350- 3446-
MEDINA GRIMSBY WHIRLPOOL	3597- 3603- 3773-	3206- 3250-	3962- 3986- 4110-	3664- 3676- 3812-	3970- 3979- 4150-	3737- 3745- 3906-	3602- 3618- 3778-	3432- 3439- 3600-	3793- 3803- 3970-	3468- 3476- 3688-
QUEENSTON	3778-		4118-	3818-	4162-	3918-	3782-	3607-	3980-	3695-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3628-3779	3236-3308	4004-4052	3688-3757	4045-4156	3774-3917	3690-3788	3468-3522	3864-3916	3534-3578
TOTAL DEPTH	3890	3418	4200	3920	4267	4013	3882	3693	4084	3736
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	42 Mcf AF 950 psi/48 hrs. development Franklin Center field	750 Mcf AF 1,100 psi/2 days development Bushnell-Lexington pool Conneaut field	4,300 Mcf AF 1,120 psi/48 hrs. development Swails pool Drumlin field	3,000 Mcf AF 1,160 psi/48 hrs. extension Swails pool Drumlin field	2,200 Mcf AF 1,180 psi/48 hrs. development Mill Village field	700 Mcf AF 1,120 psi/240 hrs. development Waterford pool LeBoeuf field	231 Mcf AF 960 psi/72 hrs. development Franklin Center field	1,700 Mcf AF 1,120 psi/48 hrs. development Talcott pool Erie field	6,000 Mcf AF 1,030 psi/48 hrs. development Mill Village field	2,200 Mcf AF 1,120 psi/48 hrs. development Talcott pool Erie field

COUNTY Permit Number	Erie 21946	Erie 21947	Erie 21948	Erie 21949	Erie 21952	Erie 21953	Erie 21954	Erie 21955	Erie 21956	Erie 21961
NAME OF WELL	Robert P. Beck #1	James H. & Louise J. Glover #2	John & Carol Hanas #1	John Oauson #1	Charles J. Burge #1	James H. & Louise J. Glover #3	Harrison/ Kovschak #1	Elwood E. & Ruth E. Niemeyer #1	Elwood & Ruth Niemeyer #2	M. Caplan #1
OPERATOR	Cardinal Oil Company #10	N.E.A. Cross Company	N.E.A. Cross Company	Meridian Exploration #624	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas Incorporated
TOWNSHIP	Franklin	LeBoeuf	LeBoeuf	Washington	Waterford	LeBoeuf	Waterford	LeBoeuf	LeBoeuf	Amity
QUADRANGLE	Edinboro North	Waterford	Cambridge Springs NE	Cambridge Springs	Cambridge Springs NE	Waterford	Cambridge Springs NE	Waterford	Cambridge Springs NE	Union City
LATITUDE	8,300 ft. S 41°57'30"	8,950 ft. S 41°55'00"	12,875 ft. S 41°55'00"	2,900 ft. S 41°52'30"	11,250 ft. S 41°57'30"	11,150 ft. S 41°55'00"	14,050 ft. S 41°57'30"	1,850 ft. S 41°55'00"	1,850 ft. S 41°55'00"	10,400 ft. S 42°00'00"
LONGITUDE	4,060 ft. W 80°10'00"	4,650 ft. W 79°57'30"	850 ft. W 80°00'00"	9,900 ft. W 80°00'00"	3,400 ft. W 80°00'00"	6,250 ft. W 79°57'30"	6,750 ft. W 80°00'00"	10,450 ft. W 79°57'30"	900 ft. W 80°00'00"	9,500 ft. W 79°50'00"
DATE COMPLETED	4-20-82	7-11-82	4-27-82	6-21-82	5-2-82	5-5-82	4-25-82	6-16-82	6-22-82	6-12-82
ELEVATION	1333 GR	1190 GR	1220 GR	1330 GR	1400 GR	1190 GR	1440 GR	1420 GR	1350 GR	1315 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 100-3846 IL/GR: 100-3846	FDC/GR: 2089-4094	FDC/GR: 2300-4112	FDC/GR: 413-4257 OLL: 2256-4254	FDC/GR: 2650-4359	FDC/GR: 1998-4113		FDC/GR: 2149-4176	FDC/GR: 2100-4120	FDC/GR: 0-3998 OLL: 1985-3987
TULLY	2215-	2374-	2382-	2510-		2391-	2506-	2516-	2456-	2307-
ONONDAGA LIMESTONE CHERT	2420-	2596-	2604-	2730-	2676-	2625-	2726-	2730-	2672-	2537-
ORISKANY		2843-						2987-	2938-	
HELDERBERG KEYSER-BASS ISLANDS	2695-	2966-	2852-	2982-	2928-	2869-		3002-	2945-	2770-
SALINA GUELPH-LOCKPORT	2756- 3265-	2910- 3427-	2920- 3480-	3050- 3626-	3010- 3520-	2929- 3433-		3065- 3574-	3003- 3558-	2840- 3384-
CLINTON IRONDEQUOIT	3474- 3580-	3654- 3766-	3732- 3795-	3388- 3942-	3787- 3844-	3651- 3772-	3896-	3811- 3912-	3795- 3858-	3590- 3705-
MEDINA GRIMSBY WHIRLPOOL	3602- 3618- 3778-	3788- 3798- 3965-	3846- 3858- 3994-	3992- 4021- 4145-	3895- 3906- 4041-	3795- 3804- 3973-	3952- 4094-	3933- 3942- 4112-	3906- 3952- 4060-	3727- 3761- 3844-
QUEENSTON	3782-	3974-	4002-	4154-	4048-	3983-	4102-	4121-	4068-	3904-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3647-3684	3828-3906	3861-3901	4032-4084	3907-3960	3874-3922	3989-4034	4006-4072	3960-4014	3763-3902
TOTAL DEPTH	3867	4100	4112	4260	4165	4104	4130	4180	4100	4001
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	20 Mcf AF 500 psi/48 hrs. development Franklin Center field	300 Mcf AF 600 psi/48 hrs. development Mill Village field	500 Mcf Nat. 6,000 Mcf AF 1,120 psi/48 hrs. development Mill Village field	850 Mcf AF 1,120 psi/168 hrs. development Edinboro field	2,200 Mcf AF 1,120 psi/48 hrs. development Swails pool Drumlin field	500 Mcf AF 600 psi/48 hrs. development Mill Village field	4,000 Mcf AF 1,180 psi/48 hrs. development Swails pool Drumlin field	14 Mcf AF 1,120 psi/48 hrs. development Mill Village field	12 Mcf AF 1,120 psi/48 hrs. extension Mill Village field	1,000 Mcf AF 1,150 psi/240 hr development Waterford pool LeBoeuf field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 21966	Erie 21967	Erie 21979	Erie 21983	Erie 21986	Erie 22000	Erie 22001	Erie 22002	Erie 22005	Erie 22009
NAME OF WELL	James & Joan Rhea #1	D. & S. VanVeld R. & D. Burbridge #1	Marjorie M. Rhea #1	Gerald Proudfoot #1	Gary Means #1	R. Mogford #1	S. Reyda #1	Nicholas Andre #1	Zimmerly #3	Ronald Abbott #1
OPERATOR	N.E.A. Cross Company	Mitch-Well Energy Incorporated	N.E.A. Cross Company	Goe Pro, Incorporated	C & C Troyer Brothers #61	Envirogas, Incorporated	Envirogas, Incorporated	C & C Troyer Brothers #65	Vineyard Oil & Gas Company	Cardinal Oil Company #38
TOWNSHIP	LeBoeuf	Waterford	LeBoeuf	Elk Creek	Washington	Waterford	Wayne	Washington	Waterford	Washington
QUADRANGLE	Cambridge Springs NE	Cambridge Springs NE	Cambridge Springs NE	Conneautville	Cambridge Springs NE	Waterford	Corry	Cambridge Springs NE	Cambridge Springs NE	Edinboro South
LATITUDE	7,750 ft. S 41°55'00"	13,850 ft. S 41°57'30"	6,550 ft. S 41°55'00"	550 ft. S 41°52'30"	7,200 ft. S 41°55'00"	10,900 ft. S 42°00'00"	750 ft. S 42°00'00"	5,650 ft. S 41°55'00"	5,650 ft. S 41°57'30"	9,400 ft. S 41°52'30"
LONGITUDE	1,725 ft. W 80°00'00"	3,800 ft. W 80°00'00"	3,800 ft. W 80°00'00"	4,850 ft. W 80°17'30"	2,200 ft. W 80°05'00"	7,800 ft. W 79°52'30"	4,350 ft W 79°40'00"	10,350 ft. W 80°05'00"	2,500 ft. W 80°02'30"	10,580 ft. W 80°10'00"
DATE COMPLETED	5-20-82	7-24-82	6-5-82	7-18-82	6-5-82	6-4-82	6-22-82	6-12-82	7-16-82	7-30-82
ELEVATION	1430 GR	1370 GR	1470 GR	1160 GR	1520 GR	1550 GR	1735 GR	1340 GR	1535 GR	1356 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/GR: 2350-3985		FDC/GR: 2100-3771 GR/PR: 3450-3768	FDC/GR: 2580-4310	FDC/GR: 0-4168 DLL: 2157-4157	FDC/GR: 0-4499 DLL: 323-4486	FDC/GR: 2350-4072	DIL/LL: 300-4220 PER: 3850-4137	FDC/GR: 100-4092 GRN: 3750-4094
TULLY	2520-	2394-	2575-	2113-	2596-	2468-	2790-	2370-	2524-	2405-
ONONDAGA LIMESTONE CHERT	2742-	2610-	2806-	2301-	2810-	2700-	3039-	2582-	2744-	2610-
ORISKANY				2563-		2934-				
HELDERBERG KEYSER-BASS ISLANDS		2864-		2571-	3066-	2951-	3256-	2856-	2945-	2854-
SALINA GUELPH-LOCKPORT		2944- 3473-		2634- 3165-	3138- 3660-	3027- 3562-	3340- 3885-	2924- 3446-	3082- 3578-	2929- 3520-
CLINTON IRONDEQUOIT	3932-	3738- 3794-	3998-	3392- 3498-	3940- 4000-	3774- 3882-	4096- 4219-	3706- 3766-	3847- 3943-	3723- 3856-
MEDINA GRIMSBY WHIRLPOOL	4000- 4131-	3840- 3852-	4052- 4196-	3524- 3551- 3701-	4046- 4067- 4199-	3903- 3911- 4071-	4229 4233 4402-	3810- 3828- 3964-	3951- 4094-	3862- 3871- 4043-
QUEENSTON	4140-		4206-	3706-	4207-	4080-	4408-	3974-	4100-	4048-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4260-4070	3850-3912	4082-4132	3567-3609	4070-4118	3938-4077	4277-4405	3800-4021	3982-4097	3690-4026
TOTAL DEPTH	4260	4075	4292	3787	4318	4171	4501	4072	4215	4095
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	4,200 Mcf AF 1,180 psi/48 hrs. development Mill Village field	4,000 Mcf AF 1,160 psi/48 hrs. development Swails pool Orumlin field	4,200 Mcf AF 1,200 psi/48 hrs. development Mill Village field	1,250 Mcf AF 1,100 psi/24 hrs. development Lundys Lane pool Conneaut field	1,000 Mcf AF 1,000 psi/7 days development Edinboro North field	800 Mcf AF 1,090 psi/240 hrs. development Waterford pool LeBoeuf field	800 Mcf AF 1,150 psi/240 hrs. development Corry field	1,500 Mcf AF 1,100 psi/7 days development Edinboro North field	1,200 Mcf AF 1,000 psi/672 hrs. development Swails pool Orumlin field	156 Mcf AF 1,625 psi/72 hrs. extension Cussewago field

COUNTY Permit Number	Erie 22012	Erie 22013	Erie 22014	Erie 22022	Erie 22024	Erie 22025	Erie 22028	Erie 22031	Erie 22038	Erie 22040
NAME OF WELL	John Stull #1	Andrew Plaza #1	W. Phillips #1	X. Bemis #2	Joseph & Margaret Burawa #1	Samuel and Shirley Faulhaber #1	Herbert & Marilyn Yaple #2	Mercier #1	Earl E. Knox #1	Mary Skelton #1
OPERATOR	LeBoeuf Energy Incorporated	LeBoeuf Energy Incorporated	LeBoeuf Energy Incorporated	Envirogas, Incorporated	N.E.A. Cross Company	Cross Resources	N.E.A. Cross Company	Cross Resources	Earl E. Knox Company	Meridian Exploration #626
TOWNSHIP	Waterford	Waterford	Waterford	Wayne	LeBoeuf	Waterford	LeBoeuf	LeBoeuf	City of Erie	Washington
QUADRANGLE	Cambridge Springs NE	Cambridge Springs NE	Cambridge Springs NE	Corry	Cambridge Springs NE	Waterford	Cambridge Springs NE	Waterford	Erie North	Edinboro South
LATITUDE	11,850 ft. S 41°57'30"	10,450 ft. S 41°57'30"	10,400 ft. S 41°57'30"	3,300 ft. S 42°00'00"	7,600 ft. S 41°55'00"	10,500 ft. S 42°00'00"	5,500 ft. S 41°55'00"	10,300 ft. S 42°00'00"	10,100 ft. S 42°10'00"	8,900 ft. S 41°52'30"
LONGITUDE	10,200 ft. W 80°00'00"	1,200 ft. W 80°02'30"	9,800 ft. W 80°00'00"	5,650 ft. W 79°40'00"	8,900 ft. W 80°00'00"	10,950 ft. W 79°55'00"	1,600 ft. W 80°00'00"	9,350 ft. W 79°55'00"	10,450 ft. W 80°00'00"	7,850 ft. W 80°07'30"
DATE COMPLETED	6-14-82	6-8-82	8-23-82	6-20-82	6-18-82	6-15-82	6-11-82	6-20-82	6-12-82	6-27-82
ELEVATION	1560 GR	1570 GR	1500 GR	1805 GR	1490 GR	1225 GR	1360 GR	1370 GR	675 GR	1460 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2550-4279	FOC/GR. 2800-4262	FOC/GR. 2500-4205	FOC/GR: 0-4550 OLL: 292-4538	FOC/GR. 2300-4346	FOC/GR: 2100-3787	FOC/GR: 3986-4042	FOC/GR: 1950-3954		FOC/GR: 366-4288 OLL/GR: 2613-4279
TULLY	2600-	2617-	2540-	2866-	2606-	2142-	2488-	2221-	1219-	2554-
ONONDAGA LIMESTONE CHERT	2818-	2834-	2760-	3113-	2822-	2366-	2704-	2442-	1447-	2766-
ORISKANY		3094-				2624-		2701-	1697-	
HELDERBERG KEYSER-BASS ISLANDS	3080-	3105-	3062-	3330-	3096-	2648-	2972-	2720-	1712-	3012-
SALINA GUELPH-LOCKPORT	3146- 3664-	3160- 3650-	3106- 3582-	3406- 3956-	3161- 3700-	2726- 3230-	3036- 3572-	2808- 3298-	1776- 2147-	3086- 3657-
CLINTON IRONDEQUOIT	3916- 3980-	3913- 3973-	3848- 3908-	4166- 4274-	3969- 4023-	3444- 3560-	3833- 3891-	3519- 3629-	2402- 2481-	3880- 3994-
MEDINA GRIMSBY WHIRLPOOL	4024- 4044- 4177-	4012- 4030- 4167-	3953- 3974- 4102-	4296- 4300- 4465-	4066- 4092- 4222-	3581- 3614- 3752-	3941- 3978- 4092-	3650- 3689- 3870-	2510- 2662-	4018- 4027- 4200-
QUEENSTON	4185-	4172-	4110-	4475-	4230-	3760-	4101-	3879-	2670-	4207-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4047-4181	4031-4173	3975-4109	4317-4470	4100-4142	3628-3696	3986-4042	3722-3748	2539-2581	4055-4117
TOTAL DEPTH	4286	4270	4212	4553	4300	3892	4208	3950	2774	4337
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	893 Mcf AF 1,000 psi/41 days development Edinboro North field	1,388 Mcf AF 1,150 psi/72 hrs. extension Edinboro North field	700 Mcf AF 1,150 psi/72 hrs. development Edinboro North field	600 Mcf AF 1,250 psi/240 hrs. extension Corry field	4,000 Mcf AF 1,180 psi/48 hrs. development Edinboro North field	3,200 Mcf AF 1,160 psi/48 hrs. development Talcott pool Erie field	3,100 Mcf AF 1,200 psi/48 hrs. development Mill Village field	6,000 Mcf AF ? psi/48 hrs. development Talcott pool Erie field	47 Mcf AF 740 psi/72 hrs. development Lawrence Park pool Erie field	340 Mcf AF 1,200 psi/168 hrs. development Edinboro field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 22041	Erie 22048	Erie 22049	Erie 22050	Erie 22054	Erie 22062	Erie 22071	Erie 22086	Erie 22088	Erie 22090
NAME OF WELL	Vernon Mahan #1	Leo Meabon #1	Charles Giewont #1	Paul Campbell #1	R. Titus #2	G. Morris #3	Myrtle J. Beavers #1	F. Vanco #1	Zimmerly #5	Cecil Ethridge #1
OPERATOR	Meridian Exploration #627	Meridian Exploration #637	Meridian Exploration #636	Meridian Exploration #635	Envirogas Incorporated	Envirogas, Incorporated	Mitch-Well Energy Incorporated	Meridian Exploration #634	Vineyard Oil & Gas Company	N.E.A. Cross Company
TOWNSHIP	Washington	Washington	Washington	Washington	Greenfield	Amity	Waterford	Washington	Waterford	LeBoeuf
QUADRANGLE	Edinboro South	Edinboro South	Edinboro South	Edinboro South	North East	Waterford	Waterford	Edinboro South	Cambridge Springs NE	Millers Station
LATITUDE	7,500 ft. S 41°52'30"	4,900 ft. S 41°52'30"	6,100 ft. S 41°52'30"	6,750 ft. S 41°52'30"	6,850 ft. S 42°10'00"	9,300 ft. S 42°00'00"	6,600 ft. S 41°57'30"	8,250 ft. S 41°52'30"	6,850 ft. S 41°57'30"	1,250 ft. S 41°52'30"
LONGITUDE	10,700 ft. W 80°07'30"	8,500 ft. W 80°10'00"	6,700 ft. W 80°10'00"	1,200 ft. W 80°07'30"	400 ft. W 79°50'00"	300 ft. W 79°52'30"	6,550 ft. W 79°55'00"	1,800 ft. W 80°07'30"	5,850 ft. W 80°02'30"	1,250 ft. W 79°57'30"
DATE COMPLETED	7-12-82	7-18-82	7-29-82	8-5-82	6-13-82	6-19-82	8-17-82	8-18-82	7-19-82	8-3-82
ELEVATION	1535 GR	1420 GR	1440 GR	1265 GR	1420 GR	1355 GR	1405 GR	1310 GR	1570 GR	1260 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 0-4360 DIL/LL/GR: 2289-4361 GR 4000-4273	FDC/GR: 2200-4210 DIL/LL/GR: 0-4208 PCL/GR: 3953-3994	FDC/GR: 2150-4192 LL/GR: 2150-4187 PCL/GR: 4000-4087	FDC/GR: 418-4110 DIL/LL/GR: 418-4111		FDC/GR: 0-4005 DLL: 1991-3994	CNL/GR: 2300-4097	FDC/GR: 100-4156 DIL/LL/GR: 2000-4157 GR: 3850-4107	DIL/LL: 354-4206	FDC/GR: 2450-4264
TULLY	2615-	2464-	2501-	2357-	2042-	2339-	2368-	2408-	2546-	2510-
ONONDAGA LIMESTONE CHERT	2826-	2674-	2710-	2576-	2269-	2519-	2588-	2626-	2764-	2736-
ORISKANY				2822-			2855-	2882-		
HELDERBERG KEYSER-BASS ISLANDS	3069-	2925-	2956-	2836-	2510-	2805-	2881-	2898-	3033-	2989-
SALINA GUELPH-LOCKPORT	3144- 3716-	2998- 3565-	3030- 3579-	2894- 3463-	2624- 3000-	2891- 3424-	2930- 3482-	2944- 3516-	3098- 3612-	3045- 3585-
CLINTON IRONDEQUOIT	3931- 4046-	3772- 3879-	3846- 3926-	3694- 3795-	3260- 3300-	3630- 3740-	3682- 3800-	3735- 3858-	3866- 3915-	3818- 3929-
MEDINA GRIMSBY WHIRLPOOL	4069- 4078- 4249-	3903- 3911- 4081-	3950- 3957- 4128-	3818- 3860- 4000-	3336- 3480-	3762- 3798- 3926-	3822- 3830- 3997-	3881- 3922- 4063-	3959- 4002- 4108-	3952- 3961- 4131-
QUEENSTON	4253-	4088-	4135-	4008-	3500-	3936-	4005-	4069-	4116-	4139-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4133-4157	3953-3994	4000-4087	3860-3916	3355-3493	3799-3933	3875-3960	3936-3982	3992-4113	4024-4064
TOTAL DEPTH	4372	4212	4214	4107	3590	4008	4104	4166	4220	4262
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	241 Mcf AF 1,150 psi/168 hrs. development Edinboro field	77 Mcf AF 1,060 psi/168 hrs. extension Cussewago field	87 Mcf AF 1,070 psi/168 hrs. development Cussewago field	210 Mcf AF 1,060 psi/168 hrs. development Edinboro field	3,000 Mcf AF 900 psi/240 hrs. development Bull Reservoir pool North East field	900 Mcf AF 1,240 psi/48 hrs. development Waterford pool LeBoeuf field	2,800 Mcf AF 1,125 psi/48 hrs. development Waterford pool LeBoeuf field	485 Mcf AF 1,140 psi/168 hrs. development Edinboro field	1,200 Mcf AF 1,025 psi/72 hrs. development Reeds Corners field	500 Mcf AF 1,060 psi/48 hrs. development Mill Village field

COUNTY Permit Number	Erie 22105	Erie 22106	Erie 22113	Erie 22120	Erie 22128	Erie 22129	Erie 22130	Erie 22131	Erie 22138	Erie 22148
NAME OF WELL	R. Dale #1-A	G. Gruenwald #1-A	F. Wallace #1	M. Campbell X-236	William & Barbara Fitting #1	Harold Adams #3	James Strand #1	Schmitt & Braeger #2	R. Ohmer #1	Joe Hecker #1
OPERATOR	Envirogas Incorporated	Envirogas Incorporated	Envirogas, Incorporated	Seneca Resources Corporation	Mitch-Well Energy Incorporated	C & C Troyer Brothers #69	C & C Troyer Brothers #68	C & C Troyer Brothers #67	Envirogas, Incorporated	Meridian Exploration #657
TOWNSHIP	Greenfield	Greenfield	Wayne	Elk Creek	Waterford	Washington	Washington	Washington	Wayne	Washington
QUADRANGLE	North East	North East	Corry	Albion	Cambridge Springs NE	Cambridge Springs NE	Edinboro North	Cambridge Springs NE	Corry	Edinboro South
LATITUDE	5,300 ft. S 42°10'00"	6,300 ft. S 42°10'00"	700 ft. S 42°00'00"	3,270 ft. S 41°55'00"	14,100 ft. S 41°57'30"	9,700 ft. S 41°55'00"	4,500 ft. S 41°55'00"	13,800 ft. S 41°55'00"	850 ft. S 42°00'00"	2,300 ft. S 41°52'30"
LONGITUDE	850 ft. W 79°47'30"	10,000 ft. W 79°45'00"	11,150 ft. W 79°40'00"	6,600 ft. W 80°17'30"	5,600 ft. W 80°00'00"	7,000 ft. W 80°05'00"	4,250 ft. W 80°07'30"	4,300 ft. W 80°05'00"	1,850 ft. W 79°42'30"	7,700 ft. W 80°07'30"
DATE COMPLETED	7-17-82	7-12-82	7-26-82	8-11-82	8-2-82	8-6-82	7-30-82	8-11-82	8-3-82	9-21-82
ELEVATION	1460 GR	1440 GR	1795 GR	1089 GR	1430 GR	1370 GR	1220 GR	1430 GR	1685 GR	1370 GR
LOGS RECEIVED AND LOGGED INTERVALS			FDC/GR. 0-4534 DLL: 295-4523	FDC/GR: 1500-3568 DIL/SFL: 1550-3588 DLL/GR: 1266-3266 DIP: 1250-3250	FDC/GR: 2450-4159				FDC/GR: 0-4386 DLL: 296-4373	FDC/GR: 2146-4146 DIL/LL: 2100-4147 PCL: 3800-4124
TULLY	2065-	2054-	2844-	1950-	2487-	2450-	2216-	2522-	2722-	2437-
ONONDAGA LIMESTONE CHERT	2309-	2294-	3087-	2140-	2705-	2660-	2498-	2744-	2965-	2644-
ORISKANY				2401-						2901-
HELDERBERG KEYSER-BASS ISLANDS	2544-	2546-	3298-	2406-	2965-				3185-	2908-
SALINA GUELPH-LOCKPORT	2675- 3060-	2650- 3021-	3383- 3920-	2484- 3026-	3033- 3566-				3268- 3785-	2974- 3513-
CLINTON IRONDEQUOIT	3308- 3348-	3264- 3334-	4116- 4235-	3271- 3327-	3824- 3886-	3864-	3614-	3944-	3993- 4101-	3737- 3854-
MEDINA GRIMSBY WHIRLPOOL	3382- 3520-	3366- 3506-	4257- 4263- 4424-	3375- 3392- 3522-	3932- 3941- 4081-	3884- 4060-	3632- 3810-	3964- 4142-	4123- 4128- 4293-	3878- 3916- 4057-
QUEENSTON	3536-	3521-	4435-	3528-	4089-	4066-	3818-	4152-	4303-	4062-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3402-3531	3395-3518	4327-4433	3394-3478	3942-4022	3952-3980	3676-3728	4010-4066	4144-4302	3918-3972
TOTAL DEPTH	3639	3615	4537	3594	4165	4191	3916	4194	4389	4168
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,000 Mcf AF 1,020 psi/240 hrs. development Bull Reservoir pool North East field	1,000 Mcf AF 1,030 psi/240 hrs. development Bull Reservoir pool North East field	500 Mcf AF 1,270 psi/240 hrs. extension Corry field	105 Mcf AF 920 psi/168 hrs. development Lundys Lane pool Conneaut field	1,600 Mcf AF 1,150 psi/48 hrs. development Swails pool Drumlin field	1,500 Mcf AF 1,100 psi/7 days development Edinboro field	1,750 Mcf AF 1,100 psi/7 days development Edinboro field	2,000 Mcf AF 1,150 psi/7 days development Edinboro field	900 Mcf AF 1,265 psi/240 hrs. development Corry field	289 Mcf AF 1,050 psi/168 hrs. development Edinboro field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 22149	Erie 22150	Erie 22153	Erie 22161	Erie 22167	Erie 22168	Erie 22169	Erie 22174	Erie 22194	Erie 22205
NAME OF WELL	Paul Klie #1	V. Mahan #1	Harborcreek Public School #3	Elton Lewis #1	G. W. Fetterolf #1	Larry Harned #1	Paul Petruska #2	Albert Shields #1	Gibson #1	Frank Jagta #1
OPERATOR	Meridian Exploration #639	Meridian Exploration #654	Harborcreek Public School District	Meridian Exploration #631	Meridian Exploration #640	Meridian Exploration #655	C & C Troyer Brothers #71	N.E.A. Cross Company	Ingram Enterprises Inc. #R-1-82	C & C Troyer Brothers #72
TOWNSHIP	Washington	Washington	Harborcreek	Washington	Washington	Washington	Washington	Waterford	Greene	Waterford
QUADRANGLE	Cambridge Springs NE	Edinboro South	Harborcreek	Cambridge Springs	Cambridge Springs NE	Edinboro South	Cambridge Springs NE	Waterford	Hammett	Waterford
LATITUDE	10,500 ft. S 41°55'00"	4,150 ft. S 41°52'30"	9,000 ft. S 42°10'00"	3,700 ft. S 41°52'30"	15,000 ft. S 41°55'00"	6,400 ft. S 41°52'30"	13,950 ft. S 41°57'30"	6,700 ft. S 41°57'30"	2,950 ft. S 42°05'00"	5,200 ft. S 41°57'30"
LONGITUDE	375 ft. W 80°02'30"	10,700 ft. W 80°07'30"	11,050 ft. W 79°57'30"	2,800 ft. W 80°02'30"	9,950 ft. W 80°00'00"	8,850 ft. W 80°07'30"	2,100 ft. W 80°05'00"	9,200 ft. W 79°57'30"	290 ft. W 79°55'00"	300 ft. W 79°57'30"
DATE COMPLETED	9-10-82	10-15-82	7-26-82	8-24-82	8-31-82	9-29-82	8-16-82	9-4-82	11-1-82	9-1-82
ELEVATION	1300 GR	1455 GR	745 GR	1195 GR	1370 GR	1460 GR	1420 GR	1180 GR	1370 GR	1300 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2099-4148 OIL/LL: 19-4148 GR: 3800-4091	FDC/GR: 2250-4247 OIL/LL/GR 0-4245		FDC/GR: 2099-4132 DIL/OLL: 18-4132	FDC/GR: 2200-4248 OIL/LL: 2200-3800 GR: 3900-4183 LL: 3700-4240	FDC/GR: 2204-4242 LL/GR: 17-4234 PCL: 4016-4122	FDC/GR/GO: 2200-4248	FDC/GR: 1700-3785		CNL/GR: 2200-3963
TULLY	2425-	2517-	1278-	2419-	2526-	2535-	2442-	2086-	2122-	2265-
ONONDAGA LIMESTONE CHERT	2642-	2734-	1500-	2634-	2746-	2750-	2654-	2305-	2350-	2437-
ORISKANY				2882-				2594-	2664-	2692-
HELDERBERG KEYSER-BASS ISLANDS	2918-	2979-	2080-	2892-	3002-	2995-	2918-	2608-	2702-	2720-
SALINA GUELPH-LOCKPORT	2984- 3502-	3050- 3598-		2950- 3524-	3075- 3642-	3068- 3620-	2984- 3500-	2702- 3161-	2912- 3004-	2800- 3343-
CLINTON IRONDEQUOIT	3794- 3847-	3821- 3935-	2534-	3780- 3843-	3890- 3942-	3872- 3956-	3764- 3822-	3390- 3500-	3274-	3536- 3650-
MEDINA GRIMSBY WHIRLPOOL	3894- 3911- 4046-	3959- 3967- 4138-	2570- 2714-	3891- 3916- 4046-	3991- 4012- 4142-	3980- 4015- 4157-	3866- 3887- 4018-	3522- 3531- 3695-	3421-	3681- 3690- 3853-
QUEENSTON	4054-	4145-	2724-	4055-	4152-	4164-	4028-	3703-	3584-	3862-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3942-3985	3994-4041	2582-2721	3921-3985	4022-4100	4016-4122	3888-3939	3580-3620	3441-3529	3755-3797
TOTAL DEPTH	4154	4250	2850	4145	4257	4265	4130	3730	3682	3964
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	475 Mcf AF 1,140 psi/168 hrs. development Edinboro North field	328 Mcf AF 1,150 psi/312 hrs. development Edinboro field	1,100 Mcf AF 710 psi/72 hrs. development Harborcreek pool North East field	392 Mcf AF 1,160 psi/168 hrs. development Edinboro field	140 Mcf AF 1,200 psi/168 hrs. development Edinboro North field	215 Mcf AF 1,175 psi/168 hrs. development Edinboro field	1,500 Mcf AF 1,100 psi/168 hrs. development Edinboro North field	1,000 Mcf AF 1,160 psi/48 hrs. development Waterford pool Drumlin field	1,200 Mcf AF 900 psi/72 hrs. development Kuhl pool North East field	1,500 Mcf AF 1,100 psi/7 days development Waterford pool LeBoeuf field

COUNTY Permit Number	Erie 22206	Erie 22207	Erie 22208	Erie 22211	Erie 22212	Erie 22226	Erie 22227	Erie 22228	Erie 22249	Erie 22318
NAME OF WELL	Dennis R. Bliley #2	Roscoe & Marilyn Mitchell #3	Joseph & Roberta Kuzma #2	E. Wayne Hull #1	Joseph & JoAnn LaPaglia #1	Thelma Ekelund #1	James R. Donnell #1	Coffin #2	Smith Unit #2	Roscoe & Marilyn Mitchell #4
OPERATOR	C & C Troyer Brothers #70	N.E.A. Cross Company	N.E.A. Cross Company	Mitchell, Heard, Hopkins & Beavers	Mitch-Well Energy Incorporated	Meridian Exploration #656	C & C Troyer Brothers #73	LeBoeuf Energy Incorporated #4	Meridian Exploration #611	N.E.A. Cross Company
TOWNSHIP	Waterford	LeBoeuf	LeBoeuf	LeBoeuf	Waterford	Washington	Waterford	Waterford	Washington	LeBoeuf
QUADRANGLE	Waterford	Cambridge Springs NE	Waterford	Cambridge Springs NE	Waterford	Edinboro South	Waterford	Cambridge Springs NE	Cambridge Springs NE	Cambridge Springs NE
LATITUDE	5,250 ft. S 41°57'30"	1,350 ft. S 41°55'00"	5,000 ft. S 41°55'00"	2,300 ft. S 41°55'00"	10,550 ft. S 42°00'00"	4,900 ft. S 41°52'30"	4,150 ft. S 41°57'30"	13,450 ft. S 41°57'30"	1,700 ft. S 41°55'00"	1,900 ft. S 41°55'00"
LONGITUDE	2,500 ft. W 79°57'30"	2,650 ft. W 80°00'00"	9,200 ft. W 79°55'00"	3,700 ft. W 80°00'00"	7,500 ft. W 79°57'30"	7,550 ft. W 80°07'30"	3,000 ft. W 79°57'30"	550 ft. W 80°02'30"	1,000 ft. W 80°05'00"	3,850 ft. W 80°00'00"
DATE COMPLETED	8-28-82	9-23-82	9-16-82	9-21-82	9-7-82	9-29-82	9-7-82	9-15-82	10-12-82	10-2-82
ELEVATION	1180 GR	1325 GR	1200 GR	1354 GR	1210 GR	1390 GR	1200 GR	1540 GR	1445 GR	1370 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2050-3853	FDC/GR: 2300-4119	FDC/GR: 2150-4034	FDC/GR: 2400-4178		FDC/GR: 2200-4204 LL/GR: 2200-4205 PCL: 3969-4008		FDC/GR: 2550-4276	FDC/GR: 2101-4119 LL/GR: 2100-4117	FDC/GR: 2300-4212
TULLY	2091-	2422-	2310-	2479-	2031-	2461-	2098-	2276-	2482-	2496-
ONONDAGA LIMESTONE CHERT	2313-	2638-	2530-	2696-	2253-	2688-	2326-	2790-	2694-	2714-
ORISKANY	2589-					2932-				
HELDERBERG KEYSER-BASS ISLANDS	2600-	2897-	2777-	2955-		2947-		3060-	2960-	2981-
SALINA GUELPH-LOCKPORT	2691- 3216-	2968- 3520-	2856- 3391-	3017- 3560-	2729-	3011- 3583-		3144- 3678-	3026- 3554-	3046- 3578-
CLINTON IRONDEQUOIT	3420- 3533-	3759- 3822-	3607- 3726-	3822- 3888-		3784- 3898-	3532-	3954- 4008-	3803- 3862-	3840- 3900-
MEDINA GRIMSBY WHIRLPOOL	3555- 3564- 3727-	3868- 3918- 4022-	3748- 3758- 3924-	3932- 3954- 4084-	3474- 3656-	3921- 3967- 4097-	3554- 3728-	4051- 4069- 4201-	3905- 3919- 4060-	3946- 3968- 4098-
QUEENSTON	3736-	4028-	3936-	4093-	3665-	4104-	3736-	4206-	4069-	4106-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3634-3680	3896-3960	3804-3874	3900-3995	3540-3665	3969-4008	3619-3661	4070-4121	3922-4008	3850-4175
TOTAL DEPTH	3860	4138	4042	4186	3770	4207	3838	4269	4140	4200
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	3,000 Mcf AF 1,150 psi/7 days development Waterford pool LeBoeuf field	2,800 Mcf AF 1,010 psi/48 hrs. development Mill Village field	2,000 Mcf AF 700 psi/48 hrs. development Waterford pool LeBoeuf field	4,000 Mcf AF 1,175 psi/48 hrs. development Mill Village field	2,800 Mcf AF 1,095 psi/48 hrs. development Talcott pool Erie field	232 Mcf AF 1,175 psi/168 hrs. development Edinboro field	1,500 Mcf AF 1,150 psi/7 days development Waterford pool LeBoeuf field	400 Mcf AF 1,050 psi/168 hrs. development Edinboro North field	217 Mcf AF 1,210 psi/168 hrs. development Edinboro North field	4,000 Mcf AF 1,050 psi/48 hrs. development Mill Village field

Figure 34. *(Continued)*

COUNTY Permit Number	Erie 22319	Erie 22345	Erie 22371	Indiana 26317	Indiana 26552	Indiana 26555	Indiana 27109	Mercer 20230	Mercer 20232	Mercer 20233
NAME OF WELL	Irene & Thaddeus Kondzielski #2	Archie Morehouse #1	Glenn Troyer Farms #3C	Capizzi Unit #1	W. H. Gemmell #2	Donald Hickok #1	George A. Rickard #1	John A. Bell, III #1	Harvin Kleinhans #2	Rena Osborn #1
OPERATOR	N.E.A. Cross Company	Meridian Exploration #663	Glenn V. Troyer (Hoag)	Pennzoil Company	Peoples Natural Gas Company #5543	Felmont Oil Corporation #F-340	Consolidated Gas Supply HN-1935	Wainoco Oil & Gas Company #MC-1	Wainoco Oil & Gas Company #MC-3	Wainoco Oil & Gas Company #MC-4
TOWNSHIP	Waterford	Washington	LeBoeuf	Green	Young	Green	Green	Sandy Creek	Sandy Creek	Sandy Creek
QUADRANGLE	Cambridge Springs NE	Cambridge Springs	Waterford	Commodore	McIntyre	Barnesboro	Barnesboro	Hadley	Hadley	Hadley
LATITUDE	12,350 ft. S 41°57'30"	6,250 ft. S 41°52'30"	11,050 ft. S 41°55'00"	4,800 ft. S 40°42'30"	1,550 ft. S 40°32'30"	620 ft. S 40°40'00"	600 ft. S 40°42'30"	11,200 ft. S 41°30'00"	14,200 ft. S 41°30'00"	100 ft. S 41°27'30"
LONGITUDE	1,550 ft. W 80°00'00"	450 ft. W 80°02'30"	10,300 ft. W 79°55'00"	1,900 ft. W 78°57'30"	5,550 ft. W 79°17'30"	9,690 ft. W 78°50'00"	900 ft. W 78°50'00"	10,200 ft. W 80°12'30"	3,200 ft. W 80°12'30"	1,100 ft. W 80°12'30"
DATE COMPLETED	10-8-82	10-29-82	11-8-82	6-14-81	10-16-81	11-15-81	9-1-82	6-23-81	5-21-81	5-12-81
ELEVATION	1405 GR	1255 GR	1273 GR	1620 GR	1311 GR	1706 GR	1641 GR	1260 GR	1320 GR	1315 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/GR: 2149-4162	FDC/GR: 2150-4181 DIL/DLL: 2136-4182		FDC/GR 1094-7777 IL: 1094-7770 T: 2200-7780 SON: 20-1078	FDC/GR: 100-7715 DIL/SFL: 1868-7715 DBC/SON: 1856-7700 COR: 1868-7700	FDC/GR: 0-8318 IL: 3800-8298 POC: 8000-8300		FDC/SNP/GR: 4640-5178	FDC/LL: 446-5289	FDC/GR: 0-5318
TULLY	2451-	2452-	2476-	6884-	6894-	7327-	7434-		3303-	3305-
ONONDAGA LIMESTONE CHERT	2666-	2670-	2649-	7562- 7572-	7430-	8096-	8181- 8189-		3411-	3464-
ORISKANY				7674-	7578-	8206-	8279-			
HELDERBERG KEYSER-BASS ISLANDS	2923-	2914-	3070-	7700-	7598-	8231-	8304-		3646-	3644-
SALINA GUELPH-LOCKPORT	3000- 3518-	2975- 3558-	3298- 3488-						3766- 4550-	3746- 4567-
CLINTON IRONDEQUOIT	3786- 3838-	3825- 3882-	3774-					4728- 4787-	4824- 4878-	4836- 4898-
MEDINA GRIMSBY WHIRLPOOL	3886- 3913- 4034-	3928- 3939- 4085-	3916- 4085-					4822- 4832- 5033-	4920- 4928- 5127-	4934- 4944- 5140-
QUEENSTON	4042-	4095-	4108-					5042-	5141-	5154-
PRODUCING FORMATION	Medina	Medina	Medina	Huntersville		Oriskany		Medina	Medina	Medina
PRODUCING INTERVAL	3800-4145	3957-4032	3966-4100	7580-7638		8208-8216		4894-5040	5012-5042	5009-5152
TOTAL DEPTH	4177	4195	4221	7800	7750	8287	8475	5180	5293	5325
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Helderberg	Helderberg	Helderberg	Huntersville and Oriskany	Queenston	Queenston	Queenston
RESULTS	6,000 Mcf AF 1,160 psi/[illegible]8 hrs. development Swails pool Drumlin field	219 Mcf AF 1,200 psi/168 hrs. development Edinboro field	1,000 Mcf AF 1,200 psi/7 hrs. development Mill Village field	1,700 Mcf AF 4,000 psi/? hrs. extension Wandin pool Commodore field	58 Mcf AF 1,200 psi/16 hrs. Plugged and abandoned Deeper pool test Lewisville field	1,300 Mcf AF 3,450 psi/72 hrs. extension Lizowitz pool Strongstown field	146 Mcf Nat. 1,592 Mcf AF 4,310 psi/336 hrs. extension Uniontown pool Living Waters field	907 Mcf AF 1,325 psi/10 days development Sheakleyville field	746 Mcf AF 1,350 psi/10 days development Sheakleyville field	412 Mcf AF 1,250 psi/72 hrs. development Sheakleyville field

COUNTY Permit Number	Mercer 20234	Mercer 20235	Mercer 20244	Mercer 20245	Mercer 20246	Mercer 20247	Mercer 20258	Mercer 20264	Mercer 20265	Mercer 20266
NAME OF WELL	Robert G. Roberts #1	George T. Rounds #1	John A. Bell, III #2	Glenn K. Chess #1	Marvin Kleinhans #3	Warren I. Thompson #1	Albert R. Lengel #1	Rodney & Larry Turner #1	Frank C. & Margaret Newbold #1	Charles W. Small #1
OPERATOR	Wainoco Oil & Gas Company #MC-5	Wainoco Oil & Gas Company #MC-6	Wainoco Oil & Gas Company #MC-8	Wainoco Oil & Gas Company #MC-9	Wainoco Oil & Gas Company #MC-7	Wainoco Oil & Gas Company #MC-10	Peoples Natural Gas Company #5529	Wainoco Oil & Gas Company #MC-12	Wainoco Oil & Gas Company #MC-13	Wainoco Oil & Gas Company #MC-14
TOWNSHIP	Sandy Creek	Sandy Creek	Sandy Creek	Sandy Creek	Sandy Creek	Sandy Creek	Findley	Salem	Sandy Creek	Sandy Creek
QUADRANGLE	Hadley	Hadley	Greenville East	Greenville East	Hadley	Hadley	Mercer	Greenville East	Hadley	Hadley
LATITUDE	4,800 ft. S 41°27'30"	2,400 ft. S 41°27'30"	13,000 ft. S 41°30'00"	9,100 ft. S 41°30'00"	12,400 ft. S 41°30'00"	11,700 ft. S 41°30'00"	1,600 ft. S 41°12'30"	6,500 ft. S 41°30'00"	13,550 ft. S 41°30'00"	1,200 ft. S 41°27'30"
LONGITUDE	6,800 ft. W 80°12'30"	5,350 ft. W 80°12'30"	800 ft. W 80°15'00"	1,300 ft. W 80°15'00"	4,300 ft. W 80°12'30"	8,100 ft. W 80°12'30"	1,000 ft. W 80°10'00"	4,900 ft. W 80°15'00	7,450 ft. W 80°12'30"	3,950 ft. W 80°12'30"
DATE COMPLETED	7-15-81	7-5-81	7-1-81	6-6-81	5-29-81	6-14-81	7-24-81	7-24-81	7-8-81	8-3-81
ELEVATION	1390 GR	1365 GR	1340 GR	1260 GR	1250 GR	1290 GR	1336 GR	1330 GR	1315 GR	1320 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNP/GR: 453-5429 LL: 24-5426 Laser: 5100-5430	DBC/GR: 0-5330 GD/GR: 500-5329	GR/GD: 454-5250	FDC/SNL/GR: 450-5154 LL: 0-5151 Laser: 4810-5156	FDC/LL/GR: 445-5191	FDC/SNP/GR: 450-5218 LL: 0-5215 Laser: 4910-5220	FDC/GR: 0-6256 DLL: 963-6242 DBC/SON/GR: 963-6252 HDT: 963-6255	FDC/GR. 528-5204 LL: 0-5200 Laser: 4850-5205	FDC/SNP/GR. 499-5273 LL: 12-5270 Laser: 4920-5270	FDC/SNP/GR: 526-5343 LL: 526-5340 Laser: 4980-5345
TULLY	3394-	3364-	3279-	3181-	3226-	3242-	4082-	3223-	3289-	3330-
ONONDAGA LIMESTONE CHERT	3553-	3522-	3436-	3338-	3385-	3398-	4236-	3378-	3446-	3488-
ORISKANY		3708-	3623-	3522-			4445-			3677-
HELDERBERG KEYSER-BASS ISLANDS	3738-	3719- 3740-	3640-	3548-	3571-	3583-	4456-	3566-	3633-	3688-
SALINA GUELPH-LOCKPORT	3861- 4689-	3830- 4631-	3739- 4520-	3643- 4416-	3685- 4414-	3703- 4480-	4555- 5456-	3683- 4458-	3752- 4484-	3797- 4597-
CLINTON IRONDEQUOIT	4954- 5004-	4902- 4959-	4799- 4855-	4700- 4756-	4738- 4797-	4774- 4822-	5752- 5868-	4735- 4792-	4808- 4860-	4870- 4923-
MEDINA GRIMSBY WHIRLPOOL	5048- 5058- 5261-	4999- 5008- 5206-	4890- 4900- 5096-	4791- 4801- 4996-	4835- 4846- 5040-	4858- 4869- 5067-	5922- 5929- 6110-	4828- 4837- 5032-	4901- 4911- 5108-	4961- 4974- 5172-
QUEENSTON	5272-	5221-	5109-	5010-	5053-	5079-	6129-	5046-	5122-	5187-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5117-5269	5060-5216	4953-5104	4854-5007	4896-5050	4922-5075	5994-6114	4889-5041	4964-5018	5026-5185
TOTAL DEPTH	5431	5335	5257	5156	5198	5220	6249	5205	5275	5345
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	220 Mcf AF 1,150 psi/72 hrs. development Sheakleyville field	440 Mcf AF 1,335 psi/10 days development Sheakleyville field	880 Mcf AF 1,280 psi/72 hrs. development Sheakleyville field	381 Mcf AF 1,320 psi/10 days development Sheakleyville field	1,008 Mcf AF 1,300 psi/10 days development Sheakleyville field	660 Mcf AF 1,310 psi/10 days development Sheakleyville field	162 Mcf AF 1,025 psi/6 days Deeper pool discovery Pardoe pool Volant field	696 Mcf AF 1,350 psi/10 days extension Sheakleyville field	984 Mcf AF 1,350 psi/10 days development Sheakleyville field	539 Mcf AF 1,410 psi/10 days development Sheakleyville field

Figure 34. *(Continued)*

COUNTY Permit Number	Mercer 20273	Mercer 20274	Mercer 20275	Mercer 20276	Mercer 20277	Mercer 20284	Mercer 20285	Mercer 20286	Mercer 20287	Mercer 20290
NAME OF WELL	Carl Burrows #1	John Carey #1	Hope W. Leise #1	Chris Musgrove #1	David Stallsmith #1	Harry M. Kasbee #1	Rance Partridge #1	William Shilling #1	Earl Burrows #1	Clarence Beggs Unit #1
OPERATOR	Wainoco Oil & Gas Company #MC-15	Wainoco Oil & Gas Company #MC-18	Wainoco Oil & Gas Company #MC-11	Wainoco Oil and Gas Company #MC-17	Wainoco Oil & Gas Company #MC-16	Wainoco Oil & Gas Company #MC-21	Wainoco Oil & Gas Company #MC-22	Wainoco Oil & Gas Company #MC-20	Wainoco Oil & Gas Company #MC-19	Deer Creek Oil and Gas #HB-221-11
TOWNSHIP	Sandy Creek	Sandy Creek	Sandy Creek	Sandy Creek	Sandy Creek	Perry	Perry	Perry	Sandy Creek	Deer Creek
QUADRANGLE	Greenville East	Hadley	Greenville East	Greenville East	Hadley	Hadley	Hadley	Hadley	Greenville East	Hadley
LATITUDE	14,900 ft. S 41°30'00"	6,100 ft. S 41°27'30"	7,000 ft. S 41°30'00"	11,100 ft. S 41°30'00"	6,700 ft. S 41°27'30"	10,900 ft. S 41°27'30"	11,600 ft. S 41°27'30"	1,850 ft. S 41°25'00"	1,400 ft. S 41°27'30"	9,650 ft. S 41°30'00"
LONGITUDE	250 ft. W 80°15'00"	10,000 ft. W 80°10'00"	2,300 ft. W 80°15'00"	1,150 ft. W 80°15'00"	7,300 ft.W 80°12'30"	700 ft. W 80°12'30"	9,300 ft. W 80°10'00"	6,800 ft. W 80°10'00"	1,400 ft. W 80°15'00"	5,250 ft. W 80°07'30"
DATE COMPLETED	7-16-81	8-14-81	8-1-81	8-10-81	7-25-81	9-28-81	9-16-81	8-30-81	8-20-81	11-7-81
ELEVATION	1400 GR	1275 GR	1230 GR	1270 GR	1360 GR	1360 GR	1360 GR	1230 GR	1360 GR	1399 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL/GR: 530-5326 LL: 0-5322 Laser: 5030-5337	FDC/SNP/GR: 4877-5340 LL: 3026-5337 Laser: 5040-5342	FDC/SNL/GR: 424-5113 LL: 524-5110 Laser: 4790-5115	FDC/SNL/GR: 0-5199 LL: 521-5195 Laser. 4890-5200	FDC/SNP/GR: 497-5396 GD/GR 497-5396	FDC/SNP/GR: 527-5463 LL: 527-5455 Laser: 3600-5460	FDC/SNP/GR: 526-5443 LL: 49-5437 Laser: 5030-5443	FDC/SNP/GR: 526-5369	FDC/SNL/GR: 532-5336 LL: 24-5333 Laser: 5030-5327	FDC/GR: 462-5379 DLL: 470-5368
TULLY	3360-	3266-	3132-	3210-	3355-	3369-	3365-	3335-	3344-	3422-
ONONDAGA LIMESTONE CHERT	3517-	3430-	3288-	3368-	3515-	3530-	3531-	3509-	3502-	3589-
ORISKANY		3609-	3474-	3554-	3700-	3713-	3707-	3683-		3763-
HELDERBERG KEYSER-BASS ISLANDS	3705-	3619-	3496-	3564-	3709-	3724- 3746-	3718- 3736-	3708- 3726-	3691-	3782-
SALINA GUELPH-LOCKPORT	3820- 4608-	3742- 4602-	3591- 4377-	3680- 4456-	3824- 4661-	3868- 4704-	3840- 4718-	3858- 4636-	3832- 4601-	3885- 4738-
CLINTON IRONDEQUOIT	4886- 4942-	4874- 4931-	4640- 4702-	4729- 4785-	4933- 4988-	4985- 5046-	4977- 5034-	4910- 4978-	4870- 4928-	4999- 5064-
MEDINA GRIMSBY WHIRLPOOL	4978- 4992- 5136-	4967- 4981- 5181-	4737- 4748- 4943-	4842- 4891- 5028-	5029- 5040- 5243-	5084- 5094- 5295-	5073- 5083- 5282-	5017- 5028- 5229-	4964- 4974- 5171-	5098- 5108- 5305-
QUEENSTON	5200-	5191-	4955-	5043-	5254-	5304-	5291-	5240-	5186-	5319-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5044-5196	5050-5189	4806-4951	4896-5040	5109-5247	5152-5303	5145-5288	5106-5237	5036-5184	5191-5235
TOTAL DEPTH	5338	5342	5115	5200	5396	5465	5443	5371	5327	5382
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	713 Mcf AF 1,330 psi/10 days development Sheakleyville field	381 Mcf AF 1,275 psi/72 hrs. extension Sheakleyville field	492 Mcf AF 1,310 psi/10 days development Sheakleyville field	696 Mcf AF 1,335 psi/10 days development Sheakleyville field	220 Mcf AF 1,100 psi/72 hrs. development Sheakleyville field	348 Mcf AF 1,335 psi/10 days Deeper pool discovery Perry School pool Hadley field	412 Mcf AF 1,290 psi/72 hrs, development Perry School pool Hadley field	984 Mcf AF 1,390 psi/72 hrs. extension Perry School pool Hadley field	492 Mcf AF 1,370 psi/10 days extension Sheakleyville field	1,360 Mcf AF 1,425 psi/13 days development Kantz Corners field

COUNTY Permit Number	Mercer 20291	Mercer 20292	Mercer 20293	Mercer 20294	Mercer 20296	Mercer 20298	Mercer 20305	Mercer 20306	Mercer 20307	Mercer 20311
NAME OF WELL	Russell Woodcock #1	Harold L. Pfaff #1	Ralph G. Fritz #1	John Englert Unit #1	John Trzesniowski #1	Thomas Johnston #2	Donald W. Derber #1	Thiel College #1	Joseph J. Moreland #1	Ray F. Boughner #1
OPERATOR	Walnoco Oil & Gas Company #MC-23	Walnoco Oil & Gas Company #MC-24	Walnoco Oil & Gas Company #MC-25	Deer Creek Oil & Gas #HB-221-4	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Walnoco Oil & Gas Company #MC-26	Doran & Associates #K-W-1	Walnoco Oil & Gas Company #MC-27	Pennzoil Company
TOWNSHIP	Sandy Creek	Salem	Salem	Deer Creek	French Creek	French Creek	Sandy Creek	Hempfield	Sandy Creek	French Creek
QUADRANGLE	Hadley	Greenville East	Greenville East	New Lebanon	New Lebanon	New Lebanon	Hadley	Greenville West	Hadley	New Lebanon
LATITUDE	4,150 ft. S 41°27'30"	13,600 ft. S 41°30'00"	8,900 ft. S 41°30'00"	1,850 ft. S 41°27'30"	11,500 ft. S 41°30'00"	6,300 ft. S 41°30'00"	7,500 ft. S 41°27'30"	15,050 ft. S 41°27'30"	9,900 ft. S 41°27'30"	10,320 ft. S 41°30'00"
LONGITUDE	2,100 ft. W 80°12'30"	4,100 ft. W 80°17'30"	7,700 ft. W 80°15'00"	8,300 ft. W 80°05'00"	8,500 ft. W 80°02'30"	11,300 ft. W 80°02'30"	1,000 ft. W 80°12'30"	400 ft. W 80°22'30"	11,150 ft. W 80°10'00"	6,580 ft. W 80°02'30"
DATE COMPLETED	10-9-81	9-6-81	8-28-81	10-26-81	10-12-81	9-26-81	9-13-81	10-28-81	9-28-81	11-11-81
ELEVATION	1320 GR	1300 GR	1345 GR	1436 GR	1250 GR	1450 GR	1325 GR	1040 GR	1350 GR	1270 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNP/GR 0-5349 LL: 533-5342 Laser: 3460-5351	FDC/SNL/GR: 526-5153 LL. 50-5153 Laser: 4798-5155	FDC/SNL/GR: 35-5185 LL: 445-5185 Laser: 4780-5185	CNL/FDC/GR: 0-5510	GR/GO: 530-5331 GR/DBC: 0-5334	GR. 5000-5450	GR: 2750-3644	FDC/SNL/GR: 45-4880 LL: 518-4872 Laser: 550-4860	FDC/SNP/GR: 500-5400 LL 30-5400 Laser: 3640-5404	FDC/SNP/GR:2868-5414 LL/GR: 2806-5411 SON/GR: 0-5398 Laser: 5120-5330
TULLY	3298-	3211-	3224-	3594-	3440-		3304-	2936-	3335-	3478-
ONONDAGA LIMESTONE CHERT	3459-	3360-	3376-	3780-	3638-		3469-	3080-	3497-	3690-
ORISKANY	3642-	3560-		3939-	3790-		3634-	3282-	3676-	3837-
HELDERBERG KEYSER-BASS ISLANDS	3650-	3573-	3563-	3960- 3976-	3809-			3294- 3313-	3690- 3709-	3854-
SALINA GUELPH-LOCKPORT	3769- 4581-	3664- 4453-	3681- 4464-	4081- 4870-	3923- 4692-			3417- 4200-	3823- 4676-	3966- 4720-
CLINTON IRONDEQUOIT	4871- 4931-	4717- 4771-	4730- 4790-	5142- 5206-	4962- 5034-	5112- 5174-		4464- 4519-	4940- 5006-	5002- 5064-
MEDINA GRIMSBY WHIRLPOOL	4968- 4979- 5177-	4808- 4816- 5013-	4826- 4836- 5031-	5244- 5254- 5453-	5017- 5028- 5274-	5214- 5222- 5420-		4558- 4566- 4770-	5041- 5053- 5253-	5128- 5182- 5316-
QUEENSTON	5190-	5026-	5044-	5464-	5286-	5431-		4778-	5261-	5326-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Oriskany	Medina	Medina	Medina
PRODUCING INTERVAL	5034-5186	4888-5021	4887-5042	5318-5381	5131-5224	5253-5376	3640	4646-4675	5108-5257	5181-5257
TOTAL DEPTH	5351	5153	5185	5513	5350	5471	3645	4882	5404	5410
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Medina	Queenston	Oriskany	Queenston	Queenston	Queenston
RESULTS	440 Mcf AF 1,390 psi/10 days development Sheakleyville field	582 Mcf AF 1,330 psi/10 days New pool discovery Osborn pool Sheakleyville field	492 Mcf AF 1,270 psi/10 days extension Sheakleyville field	980 Mcf AF 1.450 psi/18 days extension Kantz Corners field	1,100 Mcf AF 1,350 psi/72 hrs. extension Kantz Corners field	2,777 Mcf AF 1,400 psi/72 hrs. development Kantz Corners field	3,550 Mcf Nat. 1.285 psi/48 hrs. Deeper pool discovery Derber pool Hadley field	980 Mcf AF 1.235 psi/6 days Deeper pool discovery Thiel pool Greenville field	467 Mcf AF 1,325 psi/72 hrs. development Perry School pool Hadley field	3,250 Mcf AF 1,410 psi/5 days development Kantz Corners field

Figure 34. *(Continued)*

COUNTY Permit Number	Mercer 20315	Mercer 20318	Mercer 20319	Mercer 20335	Mercer 20336	Mercer 20337	Mercer 20343	Mercer 20360	Mercer 20361	Mercer 20362
NAME OF WELL	A. Kobosky Unit #1	Harry R. Crawford #1	John Malokis #1	St. Paul's Home #1	John W. Boyd #1	Harry R. Crawford #2	James F. Patterson #1	Boy Scouts of America #1	Donald S. Ritter #3	N. Wengerd Unit #1
OPERATOR	Deer Creek Oil & Gas #HB-221-2	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Atlas Resources Incorporated	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	P.N.B. Petroleum Corp. #HB-221
TOWNSHIP	Deer Creek	French Creek	French Creek	West Salem	Deer Creek	French Creek	French Creek	French Creek	French Creek	Deer Creek
QUADRANGLE	New Lebanon	New Lebanon	New Lebanon	Greenville West	New Lebanon	New Lebanon	New Lebanon	New Lebanon	New Lebanon	Hadley
LATITUDE	12,850 ft. S 41°30'00"	11,050 ft. S 41°30'00"	8,700 ft. S 41°30'00"	10,250 ft. S 41°27'30"	9,400 ft. S 41°30'00"	11,100 ft. S 41°30'00"	5,100 ft. S 41°30'00"	600 ft. S 41°27'30"	10,350 ft. S 41°30'00"	14,550 ft. 41°30'00"
LONGITUDE	7,450 ft. W 80°05'00"	3,850 ft. W 80°05'00"	1,000 ft. W 80°02'30"	3,650 ft. W 80°22'30"	9,000 ft. W 80°05'00"	1,400 ft. W 80°05'00"	6,200 ft. W 80°00'00"	400 ft. W 80°00'00"	7,200 ft. W 80°00'00"	3,850 ft. W 80°07'30"
DATE COMPLETED	11-19-81	10-17-81	11-10-81	12-20-81	10-25-81	11-19-81	11-21-81	1-29-82	11-28-81	12-19-81
ELEVATION	1426 GR	1315 GR	1295 GR	1110 GR	1390 GR	1320 GR	1145 GR	1120 GR	1330 GR	1396 GR
LOGS RECEIVED AND LOGGED INTERVALS	CNL/FDC/GR: 0-5482 QLL: 522-5472	GR/DBC: 10-5376 GR/GD: 600-5372 GR: 4900-5341	GR: 4900-5360	FDC/GR: 0-4800 PR: 3050-4800 PDC/GR: 4500-4781	FDC/GR: 40-5400 LL: 524-5397		FDC/GR: 0-5260 LL: 545-5259	GR/CL/D: 0-5318	FDC/GR: 0-5464 LL: 533-5461	DBC/GR: 0-5422 GD/GR: 500-5416
TULLY	3556-	3465-	3509-	2946-	3466-	3504-	3340-	3395-	3550-	3462-
ONONDAGA LIMESTONE CHERT	3741-	3656-	3704-	3094-	3653-	3699-	3555-	3608-	3760-	3632-
ORISKANY	3903-	3817-	3862-	3294-	3819-	3877-	3704-	3748-		3801-
HELDERBERG KEYSER-BASS ISLANDS	3914-	3833-	3877-	3310-	3840-	3892-	3721-	3760- 3791-	3912- 3941-	3820-
SALINA GUELPH-LOCKPORT	4035- 4834-	3944- 4740-	4160- 4650-	3420- 4169-	3945- 4749-	4165- 4655-	3832- 4544-	3893- 4610-	4043- 4754-	3930- 4757-
CLINTON IRONDEQUOIT	5108- 5172-	5002- 5021-	5010- 5024-	4450- 4524-	5025- 5087-	5015- 5085-	4861- 4927-	4940- 5025-	5056- 5137-	5042- 5106-
MEDINA GRIMSBY WHIRLPOOL	5208- 5219- 5418-	5102- 5113- 5312-	5031- 5105- 5317-	4583- 4618- 4772-	5122- 5133- 5333-	5147- 5324-	4962- 4973- 5169-	5060- 5072- 5272-	5172- 5182- 5379-	5167- 5220- 5312-
QUEENSTON	5427-	5319-	5319-	4786-	5339-	5335-	5179-	5280-	5389-	5323-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5282-5344	5169-5232	5182-5278	4772-4784	5191-5279	5184-5258	5031-5137	5116-5204	5244-5336	5229-5278
TOTAL DEPTH	5485	5387	5442	4827	5410	5430	5239	5334	5471	5435
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,240 Mcf AF 1,275 psi/5 days development Kantz Corners field	1,700 Mcf AF 1,350 psi/72 hrs. development Kantz Corners field	2,500 Mcf AF 1,350 psi/72 hrs. development Kantz Corners field	650 Mcf AF 1,500 psi/48 hrs. extension Thiel pool Greenville field	2,000 Mcf AF 1,350 psi/72 hrs. development Kantz Corners field	1,300 Mcf AF 1,350 psi/72 hrs. development Kantz Corners field	1,040 Mcf AF 1,150 psi/72 hrs. extension Cochranton field	1,800 Mcf AF 1,400 psi/72 hrs. extension French Creek pool Utica field	1,050 Mcf AF 1,250 psi/72 hrs. extension Kantz Corners field	1,100 Mcf AF 1,500 psi/72 hrs. development Kantz Corners field

COUNTY Permit Number	Mercer 20381	Mercer 20382	Mercer 20399	Mercer 20405	Mercer 20406	Mercer 20408	Mercer 20409	Mercer 20410	Mercer 20413	Mercer 20414
NAME OF WELL	O. Anderson #1	H. Miller Unit #1	Floyd I. Bailly #1	Boy Scouts of America #2	Lakeview Builders #1	O. Sump #2	J. Yasnowski #1	M. & W. Fejes #1	Winner-Halliday #3	Ronald P. Kalinowski #2
OPERATOR	R. O. Werner Co. Inc. #HB-222-48	P.N.B. Petroleum Corp. #HB-221-25	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cyclops Corporation #C-14-173	Cyclops Corporation #C-14-211	Cyclops Corporation #C-14-101	Mitchell Energy Corporation	James Winner, Jr.	Cabot Oil & Gas Corporation
TOWNSHIP	Sugar Grove	French Creek	Deer Creek	French Creek	South Pymatuning	South Pymatuning	South Pymatuning	French Creek	Greene	French Creek
QUADRANGLE	Greenville West	New Lebanon	New Lebanon	New Lebanon	Sharpsville	Orangeville	Orangeville	New Lebanon	Greenville West	New Lebanon
LATITUDE	6,900 ft. S 41°27'30"	9,250 ft. S 41°30'00"	10,100 ft. S 41°30'00"	13,600 ft. S 41°30'00"	4,700 ft. S 41°17'30"	11,950 ft. S 41°20'00"	2,250 ft. S 41°17'30"	7,350 ft. S 41°30'00"	9,100 ft. S 41°30'00"	6,100 ft. S 41°30'00"
LONGITUDE	700 ft. W 80°22'30"	3,800 ft. W 80°05'00"	6,800 ft. W 80°05'00"	1,700 ft. W 80°00'00"	8,300 ft. W 80°27'30"	4,950 ft. W 80°30'00"	1,200 ft. W 80°30'00"	2,650 ft. W 80°00'00"	6,300 ft. W 80°25'00"	2,200 ft. W 80°02'30"
DATE COMPLETED	1-14-82	2-6-82	2-27-82	5-24-82	7-1-82	5-25-82	5-16-82	7-8-82	6-8-82	6-20-82
ELEVATION	1034 GR	1448 GR	1370 GR	1050 GR	961 GR	1053 GR	1052 GR	1149 GR	999 GR	1430 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/CNL/GR: 0-4788 DLL: 525-4775	DBC/GR: 0-5508 GR/GD: 0-5502	GR: 4930-5395	DBC/GR: 0-3670 GR/GD: 550-5274		FDC/GR: 0-5017 SNP/GR: 97-5020 DLL: 507-5002 Laser: 4700-4970	FDC/GR: 0-5076 GO: 600-5050	FDC/SNP/GR: 523-5248 DLL/GR: 598-5248		GR: 5070-5448
TULLY	2877-	3582-	3444-	3309-		2950-	2990-			
ONONDAGA LIMESTONE CHERT	3024-	3776-	3632-	3524-	3097-	3101-	3054-		2825-	
ORISKANY	3226-	3939-	3802-	3666-		3318-	3260-		3030-	
HELDERBERG KEYSER-BASS ISLANDS	3236-	3962-	3822-	3688-		3322- 3362-	3276- 3418-			
SALINA GUELPH-LOCKPORT	3346- 4133-	4062- 4854-	4100- 4632-	3810- 4596-	-4618	3474- 4336-	3530- 4388-		3895-	
CLINTON IRONDEQUOIT	4410- 4464-	5126- 5187-	5014- 5081-	4844- 4974-	4618- 4672-	4608- 4686-	4655- 4742-		4252-	5126- 5190-
MEDINA GRIMSBY WHIRLPOOL	4520- 4558- 4710-	5246- 5292- 5427-	5118- 5126- 5322-	5032- 5052- 5174-	4746- 4934-	4752- 4796- 4942±	4812- 4875- 5006-		4306- 4486-	5224- 5236- 5377-
QUEENSTON	4724-	5438-	5337-	5184-	4946-	4951-	5015-		4497-	5400-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4711-4719	5300-5346	5159-5281	5053-5144	4827-4853	4800-4853	4884-4922	5023-5202	4352-4493	5264-53[illegible]
TOTAL DEPTH	4791	5510	5441	5281	5020	5021	5084	5284	4536	5548
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	350 Mcf AF 1,375 psi/72 hrs. extension Thiel pool Greenville field	879 Mcf AF 1,625 psi/72 hrs. development Kantz Corners field	1,800 Mcf AF 1,400 psi/72 hrs. development Kantz Corners field	690 Mcf AF 1,425 psi/72 hrs. extension Kantz Corners field	1,000 Mcf AF 1,575 psi/72 hrs. development Sharon Deep pool Sharon field	1,400 Mcf AF 1,360 psi/72 hrs. development Sharon Deep pool Sharon field	1,400 Mcf AF 1,645 psi/72 hrs. development Sharon Deep pool Sharon field	551 Mcf AF 1,450 psi/144 hrs. development Cochranton field	180 Mcf AF 1,200 psi/120 hrs. development Jamestown field	1,100 Mcf AF 1,375 psi/72 hrs development McDaniel pool Cochranton field

Figure 34. *(Continued)*

COUNTY Permit Number	Mercer 20415	Mercer 20423	Mercer 20425	Mercer 20427	Mercer 20434	Mercer 20443	Mercer 20444	Mercer 20445	Mercer 20446	Mercer 20447
NAME OF WELL	J. Mirage #1	Herman Kamin #1	Winner-Halliday #4	A. Oris #3	A. Oris #2-A	Robert J. Ward #1	L. Carlson Unit #1	G. Stevenson #1	R. Weaver #1	Hugh Hollabaugh #1
OPERATOR	P.N.B. Petroleum Corp. #HB-221-23	Cabot Oil & Gas Corporation	James Winner, Jr.	Cyclops Corporation #C-14-42	Cyclops Corporation #C-14-41	Cabot Oil & Gas Corporation	R. O. Werner Co. Inc. #HB-222-17	R. O. Werner Co. Inc. #HB-222-1	R. O. Werner Co. Inc. #HB-222-13	Cabot Oil & Gas Corporation
TOWNSHIP	Deer Creek	French Creek	Greene	South Pymatuning	South Pymatuning	French Creek	Sugar Grove	Sugar Grove	Sugar Grove	French Creek
QUADRANGLE	New Lebanon	New Lebanon	Greenville West	Sharpsville	Sharpsville	New Lebanon	Greenville East	Greenville East	Greenville East	New Lebanon
LATITUDE	7,600 ft. S 41°30'00"	2,500 ft. S 41°27'30"	10,900 ft. S 41°30'00"	800 ft. S 41°17'30"	5,200 ft. S 41°17'30"	5,900 ft. S 41°30'00"	13,500 ft. S 41°30'00"	150 ft. S 41°27'30"	4,050 ft. S 41°27'30"	6,300 ft. S 41°30'00"
LONGITUDE	10,650 ft. W 80°05'00"	7,950 ft. W 80°00'00"	5,150 ft. W 80°25'00"	11,350 ft. W 80°27'30"	2,250 ft. W 80°27'30"	3,000 ft. W 80°05'00"	2,000 ft. W 80°20'00"	5,300 ft. W 80°20'00"	4,700 ft. W 80°20'00"	3,650 ft. W 80°00'00"
DATE COMPLETED	6-20-82	7-31-82	7-12-82	7-13-82	6-6-82	7-17-82	8-10-82	7-23-82	8-1-82	8-2-82
ELEVATION	1410 GR	1240 GR	984 GR	983 GR	1070 GR	1420 GR	1022 GR	1000 GR	983 GR	1180 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 0-5395 GR/GO: 550-5393	DBC/GR: 0-5455 GR/GO: 550-5450				SON: 4630-5464	FOC/CNL/GR: 0-4788 DLL: 525-4775 DBC/GR. 470-4775 SON/GR· 3000-4752	DBC/GR: 0-3738	DBC/GR: 0-4760 GO/GR: 425-4754	DBC/GR: 30-5338
TULLY	3458-	3503-					2876-	2840-	2845-	3394-
ONONDAGA LIMESTONE CHERT	3642-	3709-	2838-	3084-	3157-		3024-	2991-	2994-	3610-
ORISKANY	3814-	3854-		3290-	3345-		3225-	3187-	3196-	3757-
HELDERBERG KEYSER-BASS ISLANDS	3832-	3868- 3884-		3310- 3420-	3368- 3483-		3238-	3197-	3212-	3773-
SALINA GUELPH-LOCKPORT	3936- 4746-	3993- 4784-		3460- 4306-	3522- 4376-	4845-	3346- 4130-	3300- 4090-	3314- 4110-	3882- 4648-
CLINTON IRONDEQUOIT	5017- 5070-	5043- 5127-		4610- 4663-	4680- 4736-	5114- 5182-	4410- 4463-	4359- 4414-	4358- 4434-	4918- 4960-
MEDINA GRIMSBY WHIRLPOOL	5136- 5174- 5322-	5182- 5228- 5368-	4324- 4508-	4734- 4928-	4810- 5000-	5237- 5276- 5420-	4520- 4558- 4710-	4470- 4511- 4662-	4491- 4540- 4684-	5040- 5085- 5227-
QUEENSTON	5333-	5379-	4518-	4938-	5011-	5432-	4724-	4677-	4695-	5236-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5229-5248	5208-5302	4371-4426	4820-4845	4888-4914	5277-5393	4560-4612	4527-4576	4545-4586	5074-5184
TOTAL DEPTH	5400	5442	4607	5004	5080	5478	4775	4750	4764	5340
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	879 Mcf AF 1,400 psi/72 hrs. development Kantz Corners field	1,600 Mcf AF 1,300 psi/72 hrs. extension French Creek pool Utica field	280 Mcf AF 1,425 psi/72 hrs. development Jamestown field	1,200 Mcf AF 1,550 psi/72 hrs. development Sharon Deep pool Sharon field	768 Mcf AF 1,600 psi/72 hrs. development Sharon Deep pool Sharon field	3,500 Mcf AF 1,375 psi/72 hrs. development Kantz Corners field	1,040 Mcf AF 1,400 psi/72 hrs. development Osborn pool Sheakleyville field	1,800 Mcf AF 1,450 psi/72 hrs. development Osborn pool Sheakleyville field	1,500 Mcf AF 1,375 psi/72 hrs. extension Osborn pool Sheakleyville field	620 Mcf AF 1,250 psi/72 hrs. development Cochranton field

COUNTY Permit Number	Mercer 20448	Mercer 20452	Mercer 20454	Mercer 20460	Mercer 20467	Mercer 20472	Mercer 20478	Potter 20547	Potter 20688	Somerset 20112
NAME OF WELL	C. & V. Fry Unit #1-72	William Gunter #1	S. & W. Slater #1	W. McIntire #1	L. Williams Unit #1	Arnold Rademacher #1	Francis O'Brien #1	Moran #1	Homer-State #1-303	Herbert Nicholas Gas Unit #1
OPERATOR	Mitchell Energy Corporation	Cabot Oil & Gas Corporation	Mitchell Energy Corporation	R. O. Werner Co. Inc. #HB-222-11	R. O. Werner Co. Inc. #HB-222-12,46	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Tim-Lec Corporation	Gulf Oil Corp. #CN C-18611	Amoco Production Company
TOWNSHIP	Greene	French Creek	New Vernon	Sugar Grove	Sugar Grove	French Creek	French Creek	Genessee	Homer	Middlecreek
QUADRANGLE	Greenville West	New Lebanon	Hadley	Greenville East	Greenville East	New Lebanon	New Lebanon	Ellisburg	Austin	Kingwood
LATITUDE	300 ft. S 41°27'30"	8,050 ft. S 41°30'00"	13,900 ft. S 41°25'00"	1,050 ft. S 41°27'30"	2,150 ft. S 41°27'30"	7,100 ft. S 41°30'00"	8,750 ft. S 41°30'00"	4,450 ft. S 42°00'00"	8,000 ft. S 41°42'30"	7,625 ft. S 39°57'30"
LONGITUDE	4,300 ft. W 80°22'30"	2,800 ft. W 80°05'00"	5,250 ft. W 80°07'30"	800 ft. W 80°20'00"	4,700 ft. W 80°20'00"	4,800 ft. W 80°02'30"	2,450 ft. W 80°00'00"	8,400 ft. W 77°55'00"	4,600 ft. W 78°00'00"	4,575 ft. W 79°15'00"
DATE COMPLETED	7-17-82	9-11-82	9-11-82	8-19-82	8-28-82	10-12-82	9-21-82	12-16-77	1-1-82	3-29-81
ELEVATION	1180 GR	1460 GR	1367 GR	1033 GR	1009 GR	1350 GR	1140 GR	2060 GR	2265 GR	1803 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/SNP/GR: 500-4882 OLL: 550-4878	OBC/GR: 0-5506 GR/GD: 540-5497	FOC/SNP/GR: 606-5598	DBC/CNL/GR: 0-4818 GD/GR: 428-4811	OBC/CNL/GR: 0-4772 GD/GR: 460-4762	OBC/GR: 0-5414 GR/GD: 540-5407	OBC/GR: 0-5242 GR/GD: 0-5228	GR: 0-2500	FOC/GR: 0-5708 OBC/SON: 1526-5700 OLL/GR: 1526-5696 DIP: 4700-5700	FOC: 100-8433 GR: 1420-8430 T: 100-8440 DLL: 1500-8432
TULLY	2967-	3593-	3666-	2906-	2860-	3537-	3368-		4812-	Absent
ONONDAGA LIMESTONE CHERT	3110-	3788-	3832-	3058-	3008-	3742-	3584-		5466- 5474-	8084- 8102-
ORISKANY	3312-	3950-	3984-	3256-	3210-	3897-	3730-		Absent	8242-
HELDERBERG KEYSER-BASS ISLANDS	3326-	3966-	4008-	3264-	3224-	3914-	3752-		5499- 5546-	8321-
SALINA GUELPH-LOCKPORT	3430- 4216-	4071- 4852-	4134- 4900-	3370- 4164-	3341- 4125-	4022- 4770-	3862- 4628-		5643-	
CLINTON IRONDEQUOIT	4496- 4548-	5114- 5192-	5190- 5284-	4439- 4496-	4370- 4446-	5032- 5108-	4902- 4967-			
MEDINA GRIMSBY WHIRLPOOL	4602- 4660- 4788-	5247- 5286- 5432-	5348- 5392- 5524-	4552- 4614- 4740-	4504- 4553- 4691-	5168- 5208- 5349-	5024- 5069- 5208-			
QUEENSTON	4800-	5444-	5535-	4756-	4704-	5360-	5218-			
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Catskill		Oriskany/Helderberg
PRODUCING INTERVAL	4643-4798	5292-5365	5360-5532	4603-4658	4570-4609	5210-5314	5079-5168			8245-8278?
TOTAL DEPTH	4885	5506	5611	4823	4775	5416	5255	5136	5711	8430
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Oriskany?	Salina	Helderberg
RESULTS	280 Mcf AF 1,200 psi/120 hrs. extension Jamestown field	6,000 Mcf AF 1,450 psi/72 hrs. development Kantz Corners field	573 Mcf AF 1,450 psi/23 days Deeper pool discovery Carpenter Corners pool Sandy Lake field	1,100 Mcf AF 1,425 psi/72 hrs. development Osborn pool Sheakleyville field	1,200 Mcf AF 1,325 psi/72 hrs. development Osborn pool Sheakleyville field	2,000 Mcf AF 1,400 psi/72 hrs. development Kantz Corners field	1,200 Mcf AF 1,400 psi/48 hrs. development Cochranton field	Dry deep well Plugged back to 2330 ft. for shallow gas. Irish Settlement field	Plugged and abandoned New field wildcat	220 Mcf AF 4,042 psi/177 hrs. New field discovery Kings Bridge field

Figure 34. *(Continued)*

COUNTY Permit Number	Somerset 20120	Tioga 20105	Venango 30977	Venango 30978	Venango 30979	Venango 31224	Venango 31905	Venango 31906	Venango 32527	Venango 32528
NAME OF WELL	Charles C. Brinton #1	Arthur Knapp #1	Richard Field #1	Richard L. Field #2	F. Ernest Pardee #1	Charles O. Linton #1	Frank A. Matt #2	Charles Perrine #1	Frank Matt #1	Richard G. Stewart #1
OPERATOR	Patrick Petroleum Company	Consolidated Gas Supply #WN-1779	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Middlecreek	Delmar	Canal	Canal	French Creek	Canal	Canal	French Creek	Canal	Canal
QUADRANGLE	Kingwood	Antrim	Sugar Lake	Sugar Lake	Utica	Sugar Lake	Utica	Utica	Utica	Utica
LATITUDE	5,900 ft. S 39°57'30"	1,500 ft. S 41°40'00"	7,750 ft. S 41°32'30"	9,850 ft. S 41°32'30"	3,400 ft. S 41°25'00"	15,150 ft. S 41°32'30"	7,150 ft. S 41°30'00"	9,200 ft. S 41°27'30"	5,100 ft. S 41°30'00"	900 ft. S 41°30'00"
LONGITUDE	7,365 ft. W 79°15'00"	4,650 ft. W 77°17'30"	11,200 ft. W 79°55'00"	9,400 ft. W 79°55'00"	350 ft. W 79°57'30"	7,200 ft. W 79°57'30"	9,500 ft. W 79°57'30"	8,500 ft. W 79°57'30"	9,200 ft. W 79°57'30"	5,000 ft. W 79°57'30"
DATE COMPLETED	7-18-82	2-2-82	12-8-81	11-25-81	11-19-81	1-28-82	3-10-82	3-3-82	6-7-82	5-25-82
ELEVATION	1787 GR	1418 GR	1390 GR	1595 GR	1520 GR	1440 GR	1300 GR	1520 GR	1450 GR	1480 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/IO/GR: 100-8171 T: 1500-8171	FOC/GR: 100-6540 DBC: 45-6525 DLL: 4520-6517 FIL: 4500-6550	GR/GO: 550-5464 GR/DBC: 0-5469	FOC/CAL: 536-4655 GR: 0-4640	GR/DBC/ENP: 0-546 CNL/GR: 0-6012 GR/GO: 550-6009 GR/T/S: 420-4296	FOC/CAL: 534-5568 LL: 534-5565 GR: 502-5572	FOC/GR: 500-5450 LL/GR: 496-5452	GR/DBC: 0-5852	GR/DBC: 0-5599	GR: 5150-5546 GR/CCL: 0-5555
TULLY	Absent	5398-	3543-	3791-	4008-	3633-	3516-	3868-	3650-	3650-
ONONDAGA LIMESTONE CHERT	7914-	6400-	3773-	4014-	4221-	3856-	3735-	4081-	3872-	3872-
ORISKANY	8049-	6429-	3916-	4152-	4348-	3996-	3879-	4213-	4020-	4011-
HELDERBERG KEYSER-BASS ISLANDS	8114-		3930-	4168-	4374-	4017-	3900-	4230-	4038-	4044-
SALINA GUELPH-LOCKPORT			4048- 4830-	4289- 4955-	4496- 5314-	4129- 4896-	4012- 4792-	4354- 5150-	4144- 4920-	4148- 4934-
CLINTON IRONDEQUOIT			5074- 5113-	5244-	5581- 5685-	5163- 5254-	5052- 5126-	5420- 5558-	5198- 5261-	5202- 5268-
MEDINA GRIMSBY WHIRLPOOL			5194- 5205- 5397-	5428- 5620-	5748- 5795- 5920-	5287- 5299- 5492-	5191- 5230- 5367-	5590- 5626- 5754-	5320- 5369- 5497-	5322- 5370- 5506-
QUEENSTON			5407-	5628-	5930-	5503-	5376-	5766-	5506-	5516-
PRODUCING FORMATION		Oriskany	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL		6430-6452	5229-5358	5490-5576	5778-5877	5359-5454	5215-5326	5627-5709	5326-5449	5355-5470
TOTAL DEPTH	8170	6543	5465	5648	6014	5570	5457	5853	5602	5555
DEEPEST FORMATION REACHED	Helderberg	Oriskany?	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Show of gas 750 psi/36 hrs. extension Kings Bridge field	531 Mcf AF 3,920 psi/48 hrs. New field discovery South Wellsboro field	1,100 Mcf AF 1,250 psi/72 hrs. extension Deckard pool Cochranton field	1,300 Mcf AF 1,225 psi/72 hrs. development Deckard pool Cochranton field	Show of gas New field wildcat	1,400 Mcf AF 1,275 psi/72 hrs. development Cochranton field	852 Mcf AF 1,400 psi/72 hrs. extension Cochranton field	1,500 Mcf AF 1,350 psi/72 hrs. extension French Creek pool Utica field	850 Mcf AF 1,375 psi/72 hrs. extension Canal pool McCune Run field	2,870 Mcf AF 1,325 psi/72 hrs. Deeper pool discovery Canal pool McCune Run field

COUNTY Permit Number	Venango 32592	Venango 32593	Venango 32773	Venango 32774	Venango 32792	Venango 32913	Venango 32914	Venango 32916	Venango 33094	Venango 33389
NAME OF WELL	Donald S. Beck #1	Roy E. Bickel #1	John O. Giles #1	Bruce W. Krepp #1	PA Glass Sand Corporation #1-S	Jerry R. Galvin #1	Rollin S. Rough #1	Clifford D. Reid #1	David L. Wagner #1	Charles Whitman #2
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Canal	Canal	Canal	Jackson	Canal	Canal	Canal	Canal	Canal	Canal
QUADRANGLE	Sugar Lake	Utica	Utica	Utica	Utica	Utica	Sugar Lake	Utica	Utica	Utica
LATITUDE	14,950 ft. S 41°32'30"	9,200 ft. S 41°30'00"	10,400 ft. S 41°30'00"	1,200 ft. S 41°30'00"	8,720 ft. S 41°27'30"	5,850 ft. S 41°30'00"	11,750 ft. S 41°32'30"	300 ft. S 41°30'00"	8,600 ft. S 41°30'00"	13,800 ft. S 41°30'00"
LONGITUDE	3,050 ft. W 79°57'30"	11,300 ft. W 79°57'30"	3,700 ft. W 79°57'30"	6,950 ft. W 79°52'30"	2,580 ft. W 79°55'00"	2,350 ft. W 79°57'30"	10,200 ft. W 79°55'00"	900 ft. W 79°57'30"	5,000 ft. W 79°57'30"	4,000 ft. W 79°55'00"
DATE COMPLETED	6-18-82	7-17-82	9-24-82	7-30-82	7-26-82	11-4-82	9-15-82	9-12-82	9-29-82	10-25-82
ELEVATION	1410 GR	1280 GR	1175 GR	1195 GR	1500 GR	1445 GR	1640 GR	1400 GR	1200 GR	1180 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 0-5523 GR/GO: 525-5518	GR/DBC: 0-5434 GR/GO: 550-5430	GR/GO: 550-5370	GR/FDC: 0-5450 GR/GO: 550-5442	GR/FDC: 0-5926 GR/GO: 600-5923	GO: 550-5592 N/GR: 10-5584	GR/CCL: 5300-5680	DBC/GR: 0-5531 GR/GO: 560-5525	GR/DBC: 0-5358	GR/DBC: 0-5448 GR/GO: 568-5437
TULLY	3594-	3518-	3452-	3497-	3952-	3684-		3597-	3457-	3524-
ONONDAGA LIMESTONE ONONDAGA CHERT	3821-	3737-	3679-	3718-	4162-	3909-		3823-	3681-	3731-
ORISKANY	3958-	3881-	3818-	3844-	4282-	4046-		3957-	3825-	3861-
HELDERBERG KEYSER-BASS ISLANDS	3986-	3900-	3840- 3860-	3864- 3882-	4296- 4322-	4062- 4080-		3980- 3992-	3844- 3856-	3874- 3902-
SALINA GUELPH-LOCKPORT	4098- 4880-	4013- 4793-	3964- 4744-	3984- 4763-	4422- 5220-	4188- 4974-		4094- 4872-	3961- 4750-	4006- 4787-
CLINTON IRONDEQUOIT	5148- 5216-	5050- 5125-	5011- 5078-	5048- 5101-	5501- 5571-	5246- 5311-	5370- 5433-	5150- 5214-	5019- 5087-	5060- 5131-
MEDINA GRIMSBY WHIRLPOOL	5274- 5312- 5452-	5182- 5238- 5371-	5137- 5192- 5321-	5156- 5200- 5337-	5630- 5660- 5817-	5367- 5414- 5548-	5486- 5512- 5668-	5268- 5320- 5450-	5144- 5187- 5326-	5191- 5249- 5372-
QUEENSTON	5462-	5383-	5333-	5347-	5831-	5560-	5678-	5462-	5337-	5384-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5288-5404	5188-5335	5142-5275	5185-5302	5643-5787	5416-5506	5519-5630	5326-5413	5214-5243	5252-532[illegible]
TOTAL DEPTH	5526	5436	5378	5451	5929	5600	5698	5534	5375	5448
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,500 Mcf AF 1,400 psi/72 hrs. development Canal pool McCune Run field	2,500 Mcf AF 1,375 psi/72 hrs. development Cochranton field	500 Mcf AF 1,425 psi/48 hrs. extension Canal pool McCune Run field	1,900 Mcf AF 1,375 psi/72 hrs. Deeper pool discovery Beatty Run pool Cooperstown field	2,000 Mcf AF 1,375 psi/72 hrs. Deeper pool discovery Takitezy pool Sugar Creek-Niles field	2,400 Mcf AF 1,520 psi/48 hrs. development Canal pool McCune Run field	260 Mcf AF 1,379 psi/48 hrs. development Canal pool McCune Run field	460 Mcf AF 1,380 psi/ ? hrs. development Canal pool McCune Run field	450 Mcf AF 1,383 psi/ ? hrs. extension Canal pool McCune Run field	1,100 Mcf AF 1,300 psi/48 hrs. extension Takitezy pool Sugar Creek-Niles field

Figure 34. *(Continued)*

COUNTY Permit Number	Warren 27837	Warren 29042	Warren 29108	Warren 29173	Warren 29598	Warren 29662	Warren 29736	Warren 29954	Warren 30060	Warren 30061
NAME OF WELL	G. Savko #2	Charles Pettit #1	George Bauerle #1	Eli Yoder #1	Steven P. Mikrut #1	J. Rupczyk #1	K. Nichols #1	W. Hornburg #1	Clifford Chapman #1	Rodney Smith #1
OPERATOR	Benchmark Oil, Incorporated	Arrowhead Gas Producers, Inc.	Arrowhead Gas Producers, Inc.	Monroe Resources Limited	Sagebrush Resources Incorporated	Cumberland Oil Corporation	POI Energy, Incorporated	Monroe Resources Limited	J & L Oil & Gas Corporation	J & L Oil & Gas Corporation
TOWNSHIP	Freehold	Freehold	Freehold	Freehold	Sugar Grove	Sugar Grove	Eldred	Freehold	Freehold	Freehold
QUADRANGLE	Lottsville	Lottsville	Lottsville	Lottsville	Sugar Grove	Sugar Grove	Spring Creek	Lottsville	Lottsville	Lottsville
LATITUDE	13,900 ft. S 42°00'00"	5,100 ft. S 41°57'30"	11,350 ft. S 42°00'00"	10,150 ft. S 42°00'00"	3,250 ft. S 41°57'30"	12,600 ft. S 42°00'00"	6,000 ft. S 41°47'30"	7,400 ft. S 42°00'00"	1,050 ft. S 42°00'00"	6,150 ft. S 42°00'00"
LONGITUDE	9,100 ft. W 79°22'30"	7,450 ft. W 79°22'30"	7,850 ft. W 79°22'30"	10,400 ft. W 79°25'00"	25 ft. W 79°20'00"	9,750 ft. W 79°20'00"	3,100 ft. W 79°35'00"	6,850 ft. W 79°25'00"	2,000 ft. W 79°27'30"	4,535 ft. W 79°25'00"
DATE COMPLETED	4-27-80	2-24-81	4-5-81	5-23-81	7-21-81	10-5-81	10-5-81	9-30-81	9-25-81	9-24-81
ELEVATION	1640 GR	1955 GR	1670 GR	1464 GR	1685 GR	1784 GR	1724 GR	1736 GR	1480 GR	1750 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/GR: 300-1494, 3403-3894, 4441-5132	FDC/GR. 329-4860	FDC/SNL/GR:2988-4505 LL: 4071-4502	FDC/SNL: 700-4953 IL/GR: 691-4011 LL: 4129-4953	FDC/SNL/GR:3252-4911 LL: 4350-4908 Laser: 4630-4820	FDC/SNL/GR: 28-5388 SON: 276-5376 D: 273-5372 LL: 290-5382	FDC/SNL/GR:599-1182, 3200-4789 LL: 3469-4788	FDC/SNL/GR:399-1183, 2982-4434 LL: 399-4432 Laser: 524-4360	FDC/SNL/GR: 351-853, 3020-4823 LL: 3011-4820 Laser: 4540-4720
TULLY	3040-	3448-	3127-	2839-	3325-		3588-			3068-
ONONDAGA LIMESTONE CHERT	3338-	3735-	3417-	3092-	3519-	3441-	3853-	3338-	2996-	3360-
ORISKANY		Absent	Absent	Absent		Absent	Absent	Absent	Absent	Absent
HELDERBERG KEYSER-BASS ISLANDS		3892-	3583-	Absent 3267-	3664-	3595-	3994-	3510-	3177-	3531-
SALINA GUELPH-LOCKPORT	4000-	4555-	3647- 4246-	3325- 3897-	3726- 4412-	3660- 4276-	4056- 4726-	3568- 4166-	3229- 3818-	3608- 4186-
CLINTON IRONDEQUOIT	4489-	4784- 4871-	4478- 4561-	4145- 4226-	4595- 4682-	4516- 4601-	4990- 5053-	4392- 4475-	4052- 4132-	4418- 4499-
MEDINA GRIMSBY WHIRLPOOL	4514- 4662-	4914- 4956- 5078-	4598- 4644- 4762-	4264- 4323- 4432-	4723- 4763- 4880-	4639- 4681- 4794-	5100- 5140- 5266-	4515- 4556- 4676-	4167- 4209- 4333-	4544- 4581- 4703-
QUEENSTON	4684-	5095-	4780-	4444-	4891-	4814-	5278-	4693-	4350-	4719-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4553-4617	4972-5087	4647-4776	4325-4437	4765-4880	4683-4801	4244-4392	4563-4691	4211-4346	4710-4717
TOTAL DEPTH	4756	5096	4861	4530	4968	4934	5474	4800	4450	4782
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,323 Mcf AF 1,160 psi/48 hrs. development Savko pool Stillwater field	3,800 Mcf AF 1,125 psi/? hrs. development Savko pool Stillwater field	Non-commercial gas well 1,075 psi/46 hrs. development Freehold pool Stillwater field	575 Mcf AF 1,225 psi/48 hrs. development Freehold pool Stillwater field	315 Mcf AF 1,250 psi/? New pool discovery Mikrut pool Sugar Grove field	491 Mcf AF 1,200 psi/48 hrs. extension Stillwater field	250 Mcf AF 1,435 psi/168 hrs. development County Line field	750 Mcf AF 1,120 psi/48 hrs. development Freehold pool Stillwater field	3,424 Mcf AF 1,245 psi/48 hrs. development Freehold pool Stillwater field	3,280 Mcf AF 1,250 psi/48 hrs. development Freehold pool Stillwater field

COUNTY Permit Number	Warren 30062	Warren 30063	Warren 30064	Warren 30065	Warren 30101	Warren 30103	Warren 30104	Warren 30105	Warren 30124	Warren 30128
NAME OF WELL	Roy Perkins #1	E. Cornish #4	H. Cornish #1	H. Cornish	E. Cornish, Jr. #1	L. Huntley #1	Larry Huntley #2	Anna Savko #1	John Zajac #1	Midwest Campers #4
OPERATOR	J & L Oil & Gas Corporation	J & L Oil & Gas Corporation	J & L Oil & Gas Corporation	J & L Oil & Gas Corporation	J & L Oil & Gas Corporation	U. S. Energy Development Corp.	U. S. Energy Development Corp.	U. S. Energy Development Corp.	U. S. Energy Development Corp.	Cumberland Oil Corporation
TOWNSHIP	Freehold	Freehold	Freehold	Freehold	Freehold	Columbus	Columbus	Columbus	Columbus	Sugar Grove
QUADRANGLE	Lottsville	Lottsville	Lottsville	Lottsville	Lottsville	Columbus	Columbus	Columbus	Columbus	Sugar Grove
LATITUDE	6,850 ft. S 42°00'00"	2,850 ft. S 42°00'00"	3,535 ft. S 42°00'00"	12,150 ft. S 42°00'00"	9,900 ft. S 42°00'00"	4,900 ft. S 41°57'30"	4,250 ft. S 41°57'30"	2,650 ft. S 41°57'30"	13,750 ft. S 42°00'00"	5,450 ft. S 41°57'30"
LONGITUDE	3,000 ft. W 79°27'30"	400 ft. W 79°27'30"	4,100 ft. W 79°27'30"	7,400 ft. W 79°27'30"	7,800 ft. W 79°27'30"	3,800 ft. W 79°30'00"	950 ft. W 79°30'00"	1,800 ft. W 79°30'00"	5,650 ft. W 79°30'00"	8,100 ft. W 79°20'00"
DATE COMPLETED	9-12-81	9-15-81	9-16-81	10-26-71	9-18-81	1-24-82	10-12-81	11-15-81	1-2-82	10-1-81
ELEVATION	1467 GR	1588 GR	1481 GR	1730 GR	1760 GR	1439 GR	1527 GR	1487 GR	1447 GR	1720 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL/GR:2400-4468 LL: 3079-4468	FDC/SNL/GR:1797-4495 LL: 1793-4495 Laser: 4340-4495	FDC/SNL/GR: 894-4453 LL: 3090-4448 IL: 897-1206 Laser: 950-1050	FDC/SNL/GR:2737-4763 LL: 2535-4763 Laser: 3350-4770	FDC/SNL/GR: 700-4783 LL: 4159-4771 Laser: 4670-4785	FDC/CAL/GR:2398-4548 LL: 2485-4545 Laser: 4250-4550	FDC/CAL/GR 600-4624 LL: 4200-4599	FDC/CAL/GR: 500-4560 PCL: 4372-4470	FDC/GR: 2000-4488 LL: 1400-4488	FDC/SNL/GR.590-1184, 3250-5003 LL: 3143-5000 IL: 543-1192
TULLY	2760-	2851-	2748-	3068-	3057-	2803-	2908-		2749-	3277-
ONONDAGA LIMESTONE CHERT	3040-	3130-	3031-	3350-	3337-	3087-	3192-	3132-	3034-	3559-
ORISKANY	Absent	Absent	Absent	Absent	Absent	Absent				Absent
HELDERBERG KEYSER-BASS ISLANDS	3215-	3308-	3204-	3517-	3509-	3257-	3358-	3302-	3203-	3701-
SALINA GUELPH-LOCKPORT	3274- 3851-	3367- 3943-	3260- 3854-	3575- 4152-	3568- 4148-	3322- 3904-	3420- 3989-	3359- 3940-	3265- 3844-	3760- 4392-
CLINTON IRONDEQUOIT	4092- 4173-	4187- 4263-	4082- 4160-	4397- 4467-	4384- 4471-	4140- 4221-	4260- 4323-	4180- 4259-	4084- 4163-	4626- 4724-
MEDINA GRIMSBY WHIRLPOOL	4208- 4222- 4376-	4298- 4343- 4466-	4197- 4249- 4362-	4511- 4556- 4679-	4508- 4518- 4674-	4257- 4312- 4430-	4357- 4404- 4530-	4294- 4369- 4460-	4201- 4256- 4366-	4756- 4806- 4917-
QUEENSTON	4387-	4473-	4376-	4694-	4687-	4441-	4545-	4475-	4387-	4933-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4267-4377	4347-4468	4250-4363	4579-4633	4555-4681	4318-4436	4406-4540	4372-4470	4279-4384	4810-4930
TOTAL DEPTH	4469	4550	4462	4845	4788	4554	4600	4600	4497	5012
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,012 Mcf AF 1,250 psi/? hrs. extension Freehold pool Stillwater field	999 Mcf AF 1,230 psi/48 hrs. extension Freehold pool Stillwater field	639 Mcf AF 990 psi/48 hrs. development Freehold pool Stillwater field	2,702 Mcf AF 1,250 psi/48 hrs. extension Dewey Corners pool Columbus field	550 Mcf AF 1,250 psi/48 hrs. extension Dewey Corners pool Columbus field	1,163 Mcf AF 1,245 psi/48 hrs. development Dewey Corners pool Columbus field	896 Mcf AF 1,235 psi/48 hrs. development Dewey Corners pool Columbus field	1,050 Mcf AF 1,250 psi/48 hrs. extension Dewey Corners pool Columbus field	1,200 Mcf AF 1,240 psi/? hrs. development Dewey Corners pool Columbus field	756 Mcf AF 1,230 psi/48 hrs. extension Pikes Rocks pool Youngsville field

Figure 34. *(Continued)*

COUNTY Permit Number	Warren 30160	Warren 30414	Warren 30551	Warren 30552	Warren 30558	Warren 30560	Warren 30561	Warren 30571	Warren 30572	Warren 30602
NAME OF WELL	R. E. Lochner #1	W. N. Russell #1	Max Manwaring #1	Max Manwaring #2	Richard Ruhlman #1	Frank Savko #2	F. Savko #3	O. P. Trisket #1	O. P. Trisket #	John Zalik #1
OPERATOR	J & L Oil & Gas Corporation	Texas International Petroleum Corp.	Monroe Resources Limited	Monroe Resources Limited	Monroe Resources Limited	U. S. Energy Development Corp.	U. S. Energy Development Corp.	U. S. Energy Development Corp.	U. S. Energy Development Corp.	Pivot Petroleum Incorporated
TOWNSHIP	Columbus	Sugar Grove	Freehold	Freehold	Columbus	Columbus	Columbus	Columbus	Columbus	Freehold
QUADRANGLE	Columbus	Sugar Grove	Lottsville	Lottsville	Lottsville	Columbus	Columbus	Columbus	Columbus	Lottsville
LATITUDE	50 ft. S 41°55'00"	10,065 ft. S 42°00'00"	13,500 ft. S 42°00'00"	13,970 ft. S 42°00'00"	9,470 ft. S 41°57'30"	4,300 ft. S 41°57'30"	2,725 ft. S 41°57'30"	450 ft. S 41°57'30"	465 ft. S 41°57'30"	10,925 ft. 42°00'00"
LONGITUDE	6,900 ft. W 79°30'00"	7,800 ft. W 79°20'00"	9,035 ft. W 79°27'30"	7,130 ft. W 79°27'30"	9,800 ft. W 79°27'30"	8,000 ft. W 79°30'00"	9,050 ft, W 79°30'00"	7,650 ft. W 79°30'00"	5,535 ft. W 79°30'00"	1,770 ft. W 79°27'30"
DATE COMPLETED	10-14-81	1-6-82	2-15-82	2-28-82	1-21-82	1-31-82	1-14-82	1-6-82	2-9-82	1-9-82
ELEVATION	1755 GR	1600 GR	1714 GR	1793 GR	1458 GR	1432 GR	1627 GR	1447 GR	1439 GR	1409 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL/GR:3150-5012 LL: 598-5006 Laser: 4824-5014		FDC/GR: 700-4804 LL: 4600-4804	FDC/SNL/GR:2898-4904 LL: 2888-4901	FDC/SNL/GR:2630-4625 IL: 2632-4625	FDC/SNL/GR:2500-4510 LL: 2500-4506 PCL: 4291-4411 GR: 4150-4471	FDC/SNL: 2680-4686 LL: 420-4682 Laser: 4400-4610	FDC/SNL/GR:2500-4502 LL:3550-4498 Laser: 4216-4504	FDC/SNL/GR:2250-4485 LL: 2400-4472 Laser: 4200-4490	FDC/SNL/GR:2485-4513 LL: 3895-4512
TULLY	3188-			3171-	2912-	2781-	2960-	2761-	2771-	2766-
ONONDAGA LIMESTONE CHERT	3476-	3280-	3357-	3449-	3198-	3064-	3244-	3046-	3054-	3048-
ORISKANY			Absent		Absent		Absent	Absent	Absent	Absent
HELDERBERG KEYSER-BASS ISLANDS	3636-		3523-	3614-	3361-	3233-	Absent 3411-	Absent 3213-	Absent 3221-	3222-
SALINA GUELPH-LOCKPORT	3707- 4287-	4000-	3583- 4162-	3675- 4300-	3422- 4018-	3296- 3867-	3476- 4054-	3281- 3854-	3288- 3864-	3276- 3870-
CLINTON IRONDEQUOIT	4534- 4622-	4300- 4480-	4457- 4489-	4500- 4581-	4252- 4334-	4117- 4198-	4301- 4380-	4094- 4178-	4102- 4181-	4106- 4185-
MEDINA GRIMSBY WHIRLPOOL	4656- 4711- 4830-	?4520- ?4560- ?4675-	4527- 4539- 4693-	4616- 4692- 4784-	4370- 4413- 4543-	4234- 4274- 4404-	4414- 4458- 4586-	4217- 4263- 4383-	4215- 4265- 4388-	4225- 4285- 4394-
QUEENSTON	4841-	?4700-	4705-	4798-	4556-	4417-	4599-	4396-	4400-	4405-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAT	4712-4838	4556-5629	4575-4703	4695-4795	4429-4554	4291-4411	4461-4596	4259-4394	4265-4397	4287-4396
TOTAL DEPTH	4992	4842	4854	4902	4663	4556	4683	4500	4499	4516
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,980 Mcf AF 1,250 psi/48 hrs. extension Whites Run pool Columbus field	189 Mcf AF 1,230 psi/6 hrs. development Stillwater field	850 Mcf AF 1,200 psi/48 hrs. development Dewey Corners pool Columbus field	1,104 Mcf AF 1,214 psi/48 hrs. development Dewey Corners pool Columbus field	902 Mcf AF 1,150 psi/48 hrs. extension Whites Run pool Columbus field	2,700 Mcf AF 1,260 psi/48 hrs. development Dewey Corners pool Columbus field	1,694 Mcf AF 1,225 psi/48 hrs. development Dewey Corners pool Columbus field	900 Mcf AF 1,230 psi/48 hrs. development Dewey Corners pool Columbus field	1,400 Mcf AF 1,230 psi/48 hrs. development Dewey Corners pool Columbus field	639 Mcf AF 1,220 psi/48 hrs. extension Dewey Corners pool Columbus field

COUNTY Permit Number	Warren 30603	Warren 30848	Warren 30964	Warren 31133	Westmoreland 22081	Westmoreland 22102				
NAME OF WELL	Max Manwaring #5	Cornish Lumber Company #1	Jensen-Lewis #1	C. Savko #1	Eleanor G. Morris #1	Forbes State Forests, Inc. #1				
OPERATOR	Monroe Resources Limitd	Universal Resources Holdings, Inc. #4	U. S. Energy Development Corp.	U. S. Energy Development Corp.	Peoples Natural Gas #5564	Peoples Natural Gas Co. #5580				
TOWNSHIP	Freehold	Freehold	Columbus	Columbus	Donegal	Cook				
QUADRANGLE	Lottsville	Lottsville	Columbus	Columbus	Seven Springs	Ligonier				
LATITUDE	400 ft. S 41°57'30"	6,350 ft. S 42°00'00"	5,270 ft. S 41°57'30"	3,050 ft. S 41°57'30"	3,150 ft. S 40°05'00"	12,850 ft. S 41°10'00"				
LONGITUDE	9,550 ft. W 79°27'30"	5,250 ft. W 79°27'30"	10,650 ft. W 79°30'00"	4,150 ft. W 79°30'00"	8,040 ft. W 79°15'00"	1,950 ft. W 79°12'30"				
DATE COMPLETED	3-13-82	3-7-82	2-22-82	3-31-82	7-16-82	9-18-82				
ELEVATION	1722 GR	1480 GR	1431 GR	1450 GR	2661 GR	2754 GR				
LOGS RECEIVED AND LOGGED INTERVALS	FDC/SNL/GR:2799-4800 LL 4210-4788	FDC/SNL/GR:426-4461 LL. 2608-4458	FDC/SNL/GR:2394-4550 I: 2400-4547 PCL: 4202-4483 Laser: 4210-4552	FDC/SNL/GR:2469-4476	GR/DBC/ENP:2250-7515 GR/IL: 2360-7510 GR/T: 2250-7513					
TULLY	3094-		2794-	2806-	6848-	7120-				
ONONDAGA LIMESTONE CHERT	3368-	3050-	3078-	3090-	7489- 7501-					
ORISKANY			Absent	Absent	7651-					
HELDERBERG KEYSER-BASS ISLANDS	3533-	3223-	Absent 3254-	3254-	7702-					
SALINA GUELPH-LOCKPORT	3593- 4170-	3282- 3858-	3315- 3893-	3320- 3910-						
CLINTON IRONDEQUOIT	4420- 4500-	4102- 4178-	4135- 4215-	4136- 4214-						
MEDINA GRIMSBY WHIRLPOOL	4538- 4584- 4702-	4212- 4239- 4380-	4253- 4282- 4423-	4239- 4292- 4420-						
QUEENSTON	4717-	4395-	4436-	4432-						
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Huntersville					
PRODUCING INTERVAL	4603-4714	4244-4392	4299-4431	4295-4428						
TOTAL DEPTH	4846	4474	4552	4537	7965	8409				
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Helderberg	Hamilton				
RESULTS	1,162 Mcf AF 1,145 psi/48 hrs. development Dewey Corners pool Columbus field	636 Mcf AF 985 psi/48 hrs. extension Dewey Corners pool Columbus field	1,224 Mcf AF 1,230 psi/48 hrs. development Dewey Corners pool Columbus field	1,379 Mcf AF 1,210 psi/48 hrs. development Dewey Corners pool Columbus field	4,000 Mcf Nat. 2,240 psi/3 days New pool discovery Myersbrook pool Seven Springs field	Plugged and abandoned extension Seven Springs field				